DOCUMENTED BRIEFING

RAND

Equipping the Reserve Components of the Armed Services

Summary of Findings and Recommendations

Roger Allen Brown, Leslie Lewis, John Schrader, William Taylor

Prepared for the
Office of the Secretary of Defense

National Defense Research Institute

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PREFACE

This documented briefing summarizes the findings and recommendations resulting from a study of the equipping of the Reserve Components of the Armed Forces of the United States. It uses as its principal foundation a briefing presented to the Department of Defense Reserve Component Equipping Working Group, chaired by the Assistant Secretary of Defense for Reserve Affairs, in October 1996.

The purpose of this research and analysis is to understand the policies, procedures, programs, and conditions regarding Reserve Component (RC) equipping in the Department of Defense (DoD) and the military departments. Informed by this understanding, we were tasked to provide insights as to the effectiveness of these policies and procedures and recommend measures for improvements.

This research will be of interest to the military departments, the RCs, and others concerned with national security policy and defense readiness and equipping processes and procedures.

This research was sponsored by the Assistant Secretary of Defense for Reserve Affairs and was conducted within the Forces and Resources Policy Center, part of RAND's National Defense Research Institute (NDRI), a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, and the defense agencies.

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We also extend our appreciation to our RAND colleague Jerry Sollinger, who assisted us in communicating our findings and recommendations, in both text and charts, in a manner that is more easily understood, and to Rochelle Robinson and Anissa Thompson, who assisted with compiling, formatting, editing, and corrections.

Finally, we wish to acknowledge the very useful reviews provided by our colleagues Carl Dahlman and John Schank, who contributed to the clarity and logic of our discussion and useful improvements in the readability of the final report.

The authors, of course, are completely responsible for any errors in the report or shortcomings in the research.

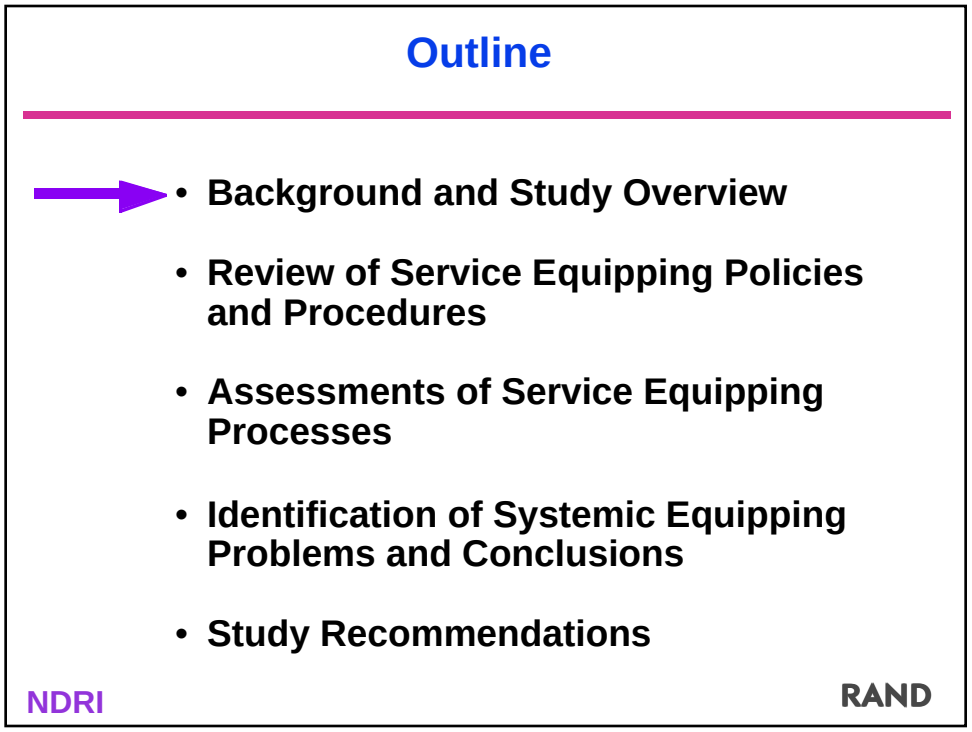
ABBREVIATIONS

AATC	Air National Guard and Air Force Reserve Test Center
AC	Active Component
ACC	Air Combat Command
AEP	Army Equipping Policy
AETC	Air Education and Training Command
AF/PR	Air Staff Programs and Resources Directorate
AFMC	Air Force Materiel Command
AFRES	Air Force Reserve
AFSC	Air Force Space Command
AFSOC	Air Force Special Operations Command
AIP	Anti-Surface Warfare Improvement Program
AMC	Air Mobility Command
AMOPES	Army Mobilization Planning and Execution System
ANG	Air National Guard
AOP	Army Order of Precedence
ARC	Air Reserve Component
ARNG	Army National Guard
ASD	Assistant Secretary of Defense
BUR	Bottom-Up Review
CINC	Commander in Chief
CS	Combat Support
CSS	Combat Service Support
COMSEC	Communications Security
DAMPL	Department of the Army Master Priority List
DoD	Department of Defense
DoN	Department of The Navy
DoT	Department of Transportation
DPG	Defense Planning Guidance
DPP	Dedicated Procurement Programs
ERC	Equipment Readiness Code
EUL	Economic Useful Life

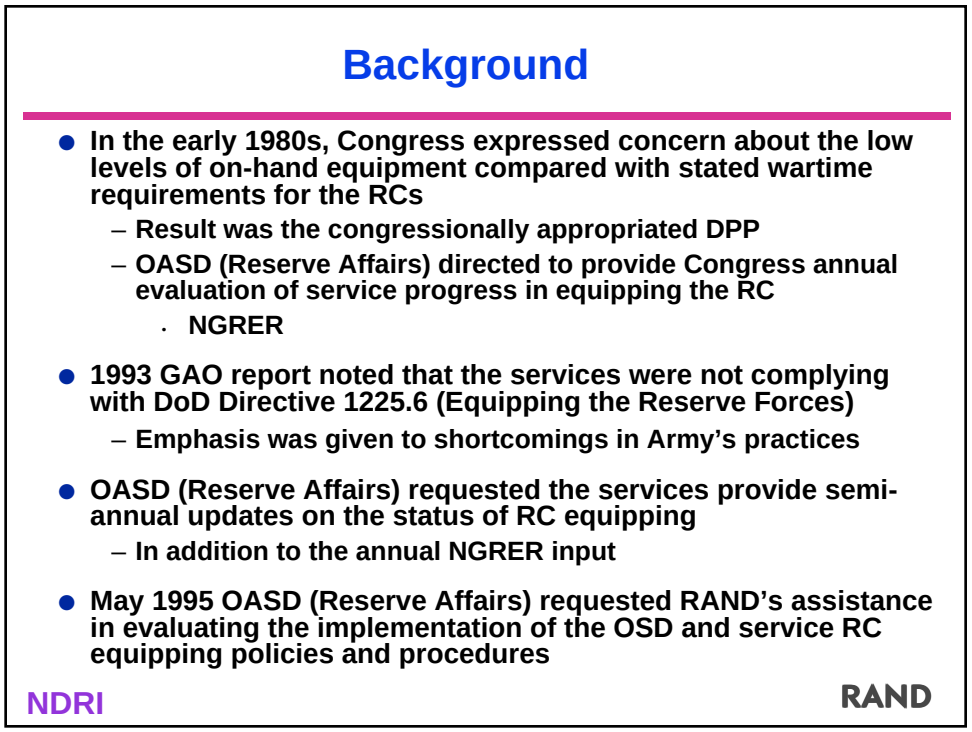
FAD	Force Activity Designator
FFG	Guided Missile Frigate
FICOP	Fighter Configuration Plan
FMT	Full Mission Trainer
FMTW	Family of Medium Tactical Vehicles
FY	Fiscal Year
FYDP	Future-Year Defense Plan
GAO	General Accounting Office
GPS	Global Positioning System
HMMWV	High-Mobility Multipurpose Wheeled Vehicle
IPD	Issue Priority Designator
JDAM	Joint Direct Attack Munition
JSCP	Joint Strategic Capabilities Plan
JSOW	Joint Standoff Weapon
LRAMP	Long-Range Army Modernization Plan
LRRDAP	Long-Range Research, Development, and Acquisition Plan
MAJCOM	Major Command
MAPS	Mission Area Planning System
MEET	Mission Essential Equipment for Training
MOOTW	Military Operations Other Than War
MoU	Memorandum of Understanding
MPP	Modernization Planning Process
MRC	Major Regional Conflict
MTT	Multitask Trainer
MTV	Medium Tactical Vehicle
MTW	Major Theater War
NGPA	Notional Guard Personnel, Army
NGREA	National Guard and Reserve Equipment Appropriation
NGRER	National Guard and Reserve Equipment Report
NMD	National Missile Defense
NRF	Naval Reserve Fleet
NVGs	Night-Vision Goggles
OMANG	Operations and Maintenance, Army National Guard
OMAR	Operations and Maintenance, Army Reserve

OPLAN	Operational Plan
OPNAV	Naval Operations Staff
OPTEMPO	Operational Tempo
OSD	Office of the Secretary of Defense
PBC	Program Budget Committee
PEG	Program Evaluation Group
PGM	Precision-Guided Munition
POM	Program Objective Memorandum
POMCUS	Prepositioned Material Configured to Unit Sets
PPBS	Planning, Programming, and Budgeting System
PSU	Port Security Units
PWE	Primary Weapons and Equipment
QDR	Quadrennial Defense Review
RA	Resource Allocation
RC	Reserve Component
ROWPU	Reverse-Osmosis Water Purification Unit
RPA	Reserve Procurement, Army
SECNAV	Secretary of the Navy
SINCGARS	Single-Channel Ground and Airborne Radio System
SLEP	Service-Life Extension Program
SMCR	Selected Marine Corps Reserve
SSC	Small-Scale Contingency
TAA	Total Army Analysis
TAEDP	Total Army Equipment Distribution Program
TAP	The Army Plan
TDA	Table of Distribution and Allowance
TOE	Table of Organization and Equipment
TPFDL	Time-Phased Force Deployment List
UIC	Unit Identification Code
USAR	U.S. Army Reserve
USMC	U.S. Marine Corps
USMCR	U.S. Marine Corps Reserve
USTRANSCOM	U.S. Transportation Command
UTD	Unit Training Device
VHF	Very High Frequency
WCMD	Wind-Corrected Munitions Dispenser

SECTION 1. BACKGROUND AND STUDY APPROACH



This documented briefing is organized into five major sections. This section provides an overview of the study including the background, some of the important considerations affecting reserve equipping policy, a discussion of study objectives, and the organization of the project into its three major tasks.



BACKGROUND

This section summarizes the background events leading to the initiation of this study of Reserve Component (RC) equipping.

Since the early 1980s, Congress has expressed concern over the low levels of on-hand equipment compared with stated wartime requirements of the RCs. Subsequently, this concern has been manifested in congressional appropriations for Dedicated Procurement Programs (DPP) to equip the reserves.[1] Congress also directed the Department of Defense (DoD) to report annually on the status of reserve equipping. In response, the Office of the Assistant Secretary of Defense for Reserve Affairs annually provides Congress with the "National Guard and Reserve Equipment Report" (NGRER). The NGRER provides the current and projected status of selected items of combat essential equipment and evaluates the progress of each service's plans to improve RC equipment readiness. Additionally, the Under Secretary of Defense (Comptroller) provides Congress with a listing of requested service procurement, by types and values of

[1]Also referred to as the National Guard and Reserve Equipment Appropriation (NGREA) portion of the National Defense Authorization.

equipment and modifications, planned for future distribution to the RCs in the budget year of the President's annual budget submission.[2]

More recently, members of the Office of the Secretary of Defense (OSD) and national security observers outside the executive branch have expressed concern that the RCs are not adequately equipped to execute and sustain missions assigned to support the National Military Strategy to respond to two nearly simultaneous Major Regional Conflicts (MRCs) and peacetime engagements.[3] Further, a February 1993 General Accounting Office (GAO) report to Congress on the status of the Army's efforts to equip its RCs concluded that, although clear progress had occurred over the past decade, major shortages of equipment remained, including some that affected wartime missions (GAO, 1993, p. 2).

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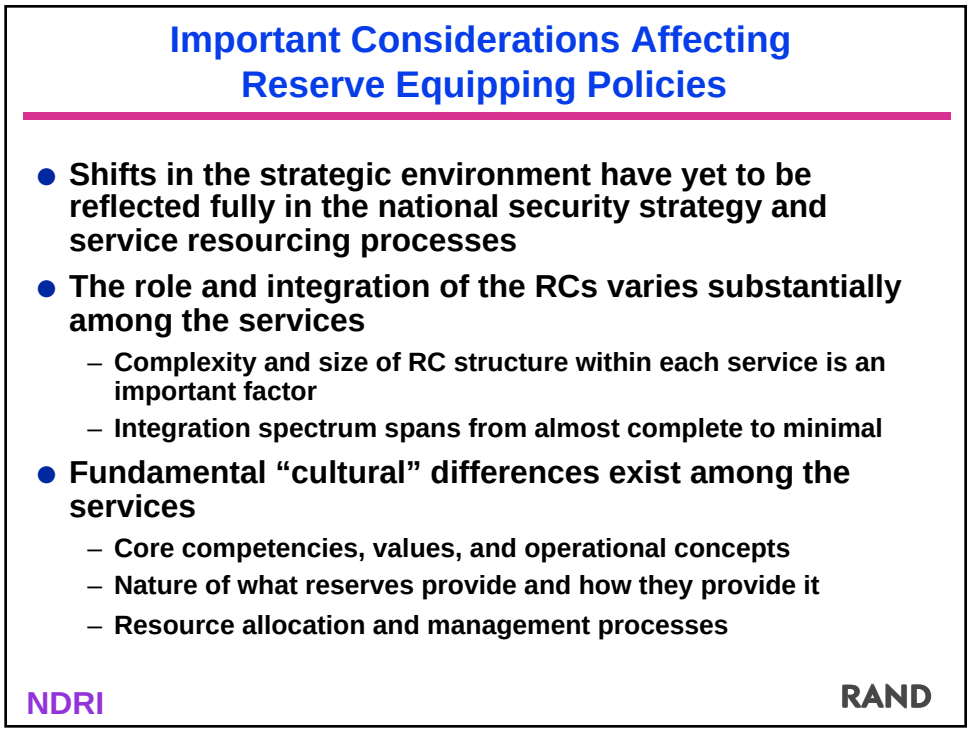
[2]This portion of the National Defense budget submission is entitled, "Procurement Programs for Reserves (P1-R)."

[3]Peacetime engagements include the full range of operations and contingencies commonly referred to as Military Operations Other Than War (MOOTW) in Joint Publication 3-07 (CJCS, 1995).



IMPORTANT CONSIDERATIONS FOR THE STUDY OF RESERVE EQUIPPING

Three key considerations affect the study of reserve equipping: changes in the strategic environment, service variations in RC integration, and cultural differences among the services.

Changes in the Strategic Environment

The current DoD policy enunciating the basis for equipping activities, and more specifically for the RCs, has evolved little since the onset of the Cold War. Post–Cold War changes in the National Military Strategy have focused the demand for forces, and indirectly for equipment, on regional conflict and, more specifically, on two nearly simultaneous MRCs. However, the change in demand has not altered the fundamental Cold War precept of equipping in that the first units scheduled for deployment or employment in these regional conflicts are the first units to receive full and modern equipment.

However, increasing U.S. military involvement in peacetime engagements and contingencies not related to those regional conflicts has raised questions as to the appropriateness of the DoD's equipping policy. The

so-called "Military Operations Other Than War" (MOOTW) have been considered less demanding operations that can be addressed with the capabilities residing in the forces developed to respond to regional conflicts. The emerging experience of the U.S. military suggests that these operations often require different types and quantities of forces and seldom employ the large number of combat forces required for MRCs. Further, peacetime contingencies, such as disaster relief, peace operations, and humanitarian assistance, may often require a higher proportion of combat support (CS) or combat service support (CSS) forces than MRCs do. Thus, some RC units, particularly in the Army, needed early in MOOTW contingencies have low equipment priority based on their projected late arrival in regional conflicts. This shift in demand may result in units that do not have the required level of equipment readiness to support their early use in MOOTW. Hence, for what appears to be the more likely operational needs, the DoD equipping policy does not fully support the equipment readiness of those units needed to perform these peacetime missions.[4]

Service Variations in RC Integration and Use

Another consideration within the equipping framework is the fundamental differences in the way the military services use, structure, mix, and equip their Active Component (AC) and RC forces. This includes the varying principles for use, the roles, and levels of integration of the active and reserve forces during peacetime and during operational employment. For example, the Army and Marines generally integrate RC units into larger active formations and then only when active forces require augmentation. The Navy, with only a small portion of its reserve in deployable units, normally uses its reserve to fill out active crews on ships or units to meet wartime manning levels. The Air Force integrates the ARC within the AC either as entire units (squadrons) or within units (providing planes and crews for existing units), for both wartime augmentation and routine peacetime operations, such as airlift sorties in support of United States Transportation Command (USTRANSCOM). Recognition of these service differences is necessary to understand and appreciate fully the several aspects of the equipping processes that determine the readiness of reserve units.

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[4]For example, the Army staff reports that recent RC activations supporting "Operation Joint Endeavor" in Bosnia included some Public Affairs, Civil Affairs, and Military Police units that had not been issued the more modern HMMWV vehicles. Expeditious redistribution of equipment from other higher priority RC units, according to MRC needs, was required to provide the needed HMMWV vehicles for these deploying units.

Service "Cultures"

Last, we recognize that service "cultures" influence their actions.[5] Aspects of the service cultures reflect the fundamental service differences in doctrine, organization, equipment, training, functions, and core competencies. These cultures also embody service plans, programs, processes, and budgets that relate in major ways to their assigned military roles and functions. They must be studied and understood to derive service priorities for resource decisions affecting reserve equipping. Service cultures often form a basis for management activities but are seldom considered directly in an examination of written policy documentation. We believe a broader context is necessary to ensure the completeness of our analysis of RC equipping. These differences suggested at the outset of the study the need for flexibility in both policy and procedures at the service and possibly individual component levels for equipping activities. We broadly describe these cultures in the following summaries.

The **Army** is a large, manpower focused, complex set of organizations that perform a myriad of functions to conduct and sustain land warfare. Its doctrine of how to fight air-land battles addresses the strategic, operational, and tactical levels of military art and science and encompasses the full spectrum of conflict from major land wars to most aspects of operations within the definition of MOOTW. The Army conducts sustained operations that seize, hold, control, and defend terrain and populations.

The **Navy**, with assistance from the Marines, is charged with conducting the full spectrum of maritime operations: undersea, on the sea, above the sea, and on those land areas that may influence operations at sea. The Navy's organization, doctrine, and operations orient on the employment and support of major weapon platforms, such as warships and aircraft at sea and in littoral areas. The **Marines** are a small, combined arms, air-ground service with the primary function of conducting those land operations that support the maritime strategy, including amphibious and aerial assaults from the sea and, once ashore, many land warfare tasks similar to those of the Army but not lengthy sustained operations.

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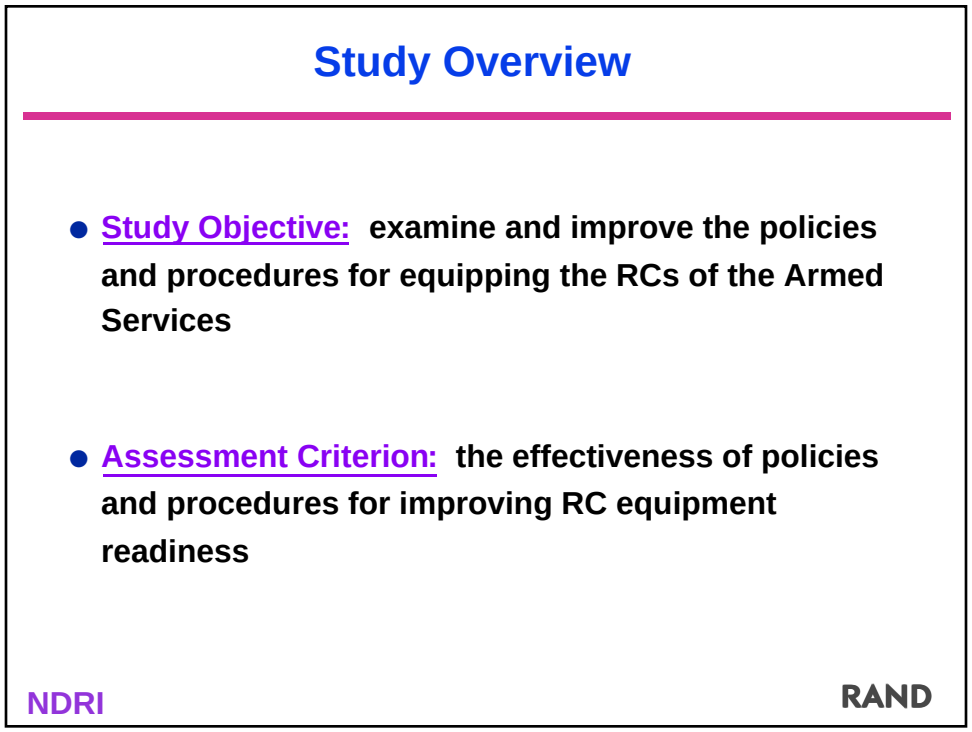
[5]The term *culture* is often cited by members of the military to differentiate the manner of operations, professional beliefs, and institutional structures within the military services. It includes the roles, doctrine, organization, and core competencies of the respective services. We use it here in that same broad meaning. For a more detailed discussion of this topic, see Brown, Schank, Dahlman (1997).

The **Air Force** provides the forces and platforms for aerial employment to secure the airspace above and provide tactical close air support to land forces, conduct strategic and operational air and missile attacks and campaigns, and provide aerial lift, both strategic and tactical, of materiel and forces. It is organized primarily to man and employ aerial weapon or transport platforms in an array of operational missions.

The **Coast Guard,** when employed for missions supporting the DoD, has many parallels to the Navy, including use of Reserves to augment active crews. This notwithstanding, those Coast Guard Reserves of interest to this study are a small number of equipped units that perform only missions related to national defense. These units are primarily Port Security Units (PSUs).

These service cultures affect the nature and use of the RCs in their respective services. For example, the Army fully recognizes the need to base the organization of its forces in components on a mobilization augmentation concept and principles; the Air Force maintains its RCs for augmentation in mobilization but also uses these forces voluntarily for many routine peacetime missions; the Navy focuses its RCs primarily on augmenting the crews of active ships; and the Marine Corps seems more closely in line with the Army but with a simpler scheme for RC integration. Further, service cultures have been manifested in the resource allocation and management processes of their respective services. Since these processes have direct effects on the status of RC equipping, the study needs to explore their operations.

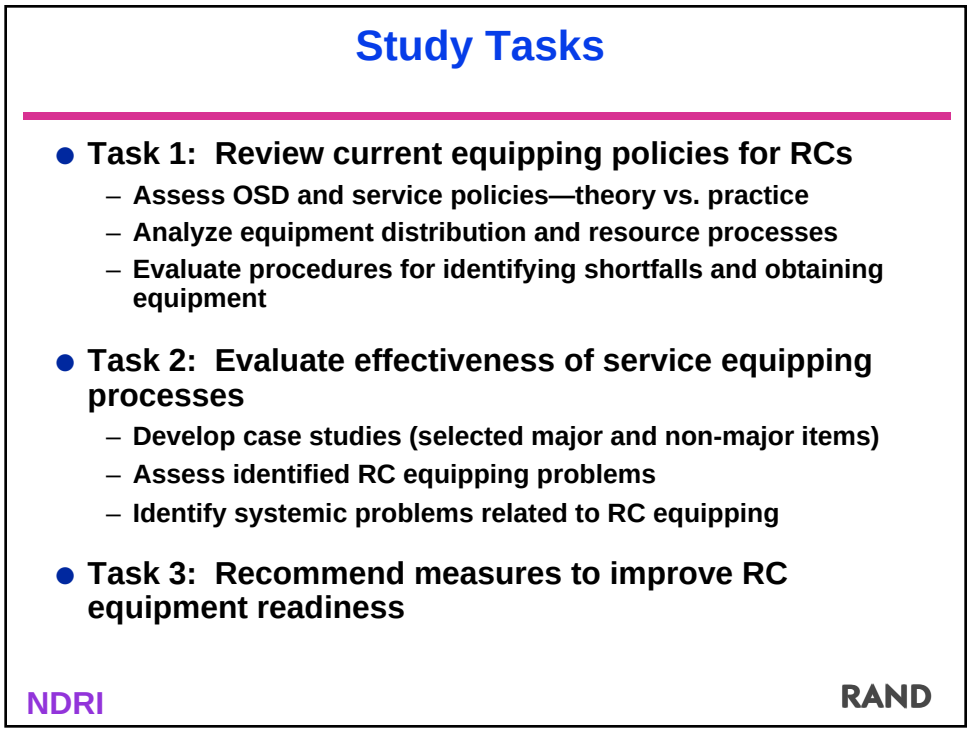
While these descriptions are broad summaries of the services intended to suggest some of their cultural differences, we fully recognize that U.S. forces operate in a joint context that often combines many of these service capabilities. However, the impact of these cultural differences within the services on implementation of equipping policy, especially for their respective RCs, appears to be equally complex and diverse, making an understanding of the differences important to this study.



STUDY OBJECTIVE

The study's principal objectives are to examine the policies and procedures of the armed services for equipping their RCs, analyze the effectiveness of these programs, and recommend improvements that could enhance the equipment readiness of the RCs. Since a majority of equipment is provided to the RCs through redistribution of in-service equipment from active units, the analysis includes redistribution systems and related in-service equipment processes.

The study researched service policies and procedures to establish a descriptive baseline of the way RCs are to be equipped. It included both a top-down review effort that describes the process in each of the military services and a bottom-up assessment of selected items of equipment using a case study methodology to determine the effectiveness of these policies and to identify any systemic problems affecting execution. Finally, it provides an overall assessment of identified equipping problems and makes recommendations for improvement.



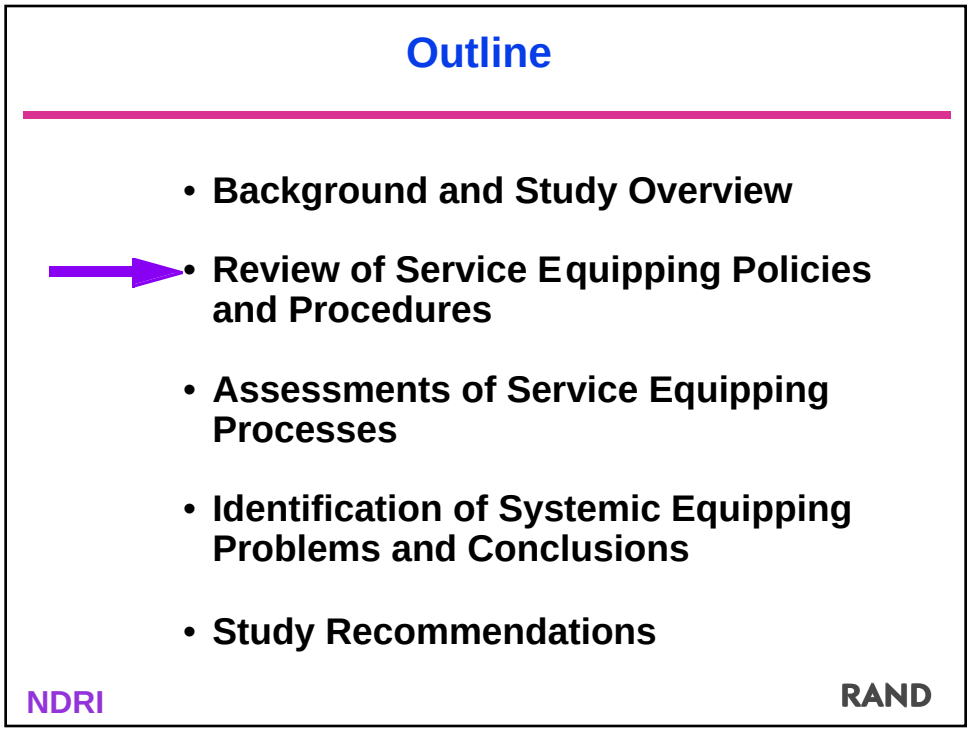
The research and analysis for this study were organized into three sequential tasks as shown. Task 1 identified the existing DoD and military department equipping policies; examined the related equipment distribution, resource management, and equipment priority systems; and determined the procedures for identifying RC equipment shortfalls and the corresponding service systems for providing required equipment to the RCs. This task was primarily a "top down" policy document review coupled with an examination of service implementing procedures.

Task 2 researched the effectiveness of service equipping processes and was founded upon a series of equipment case studies designed to provide insights to the full spectrum of service equipping activities. Using a "bottom up" approach for those items of service equipment jointly selected for case studies, we identified potential systemic problems for further research and analysis within the context of setting priorities, programming, resourcing, and distributing equipment in the affected service.[6] Where confirmed, we assessed these equipment problems for potential solution within the existing policy framework.

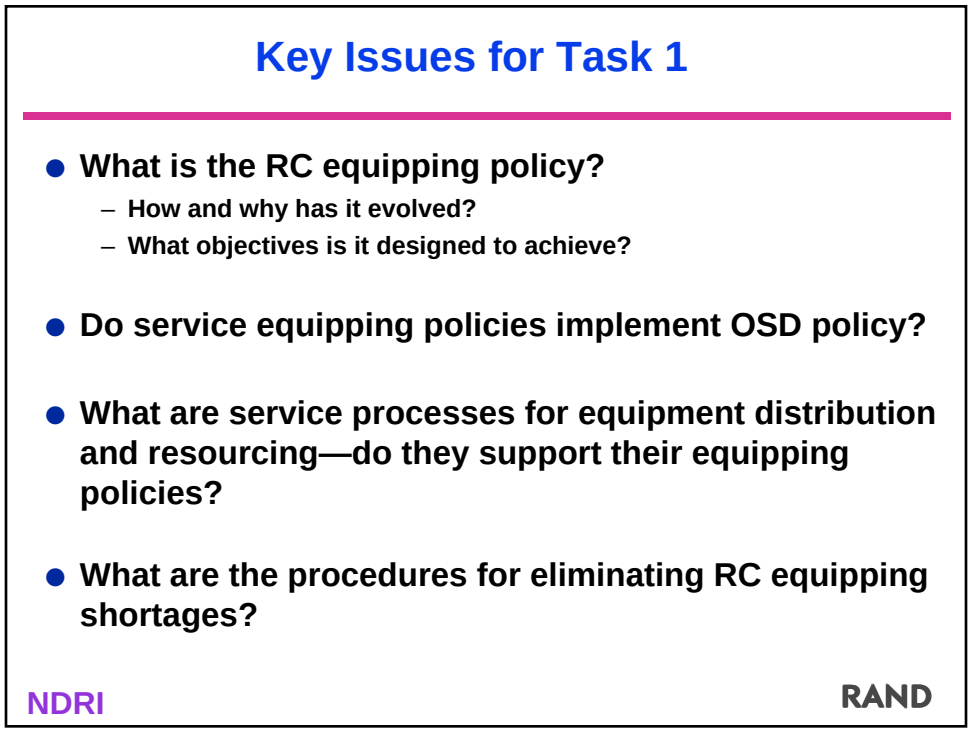
[6]Items of service equipment to be analyzed in case studies were jointly selected by the study team and the Office of the Assistant Secretary of Defense for Reserve Affairs. The characteristics used as the basis for selection are described in Section 3.

Task 3 addressed the development of recommendations for improvement in equipping policy and supporting procedures at the DoD level under the responsibility and within the policy purview of the Assistant Secretary of Defense for Reserve Affairs.

SECTION 2. REVIEW OF SERVICE EQUIPPING POLICIES AND PROCEDURES

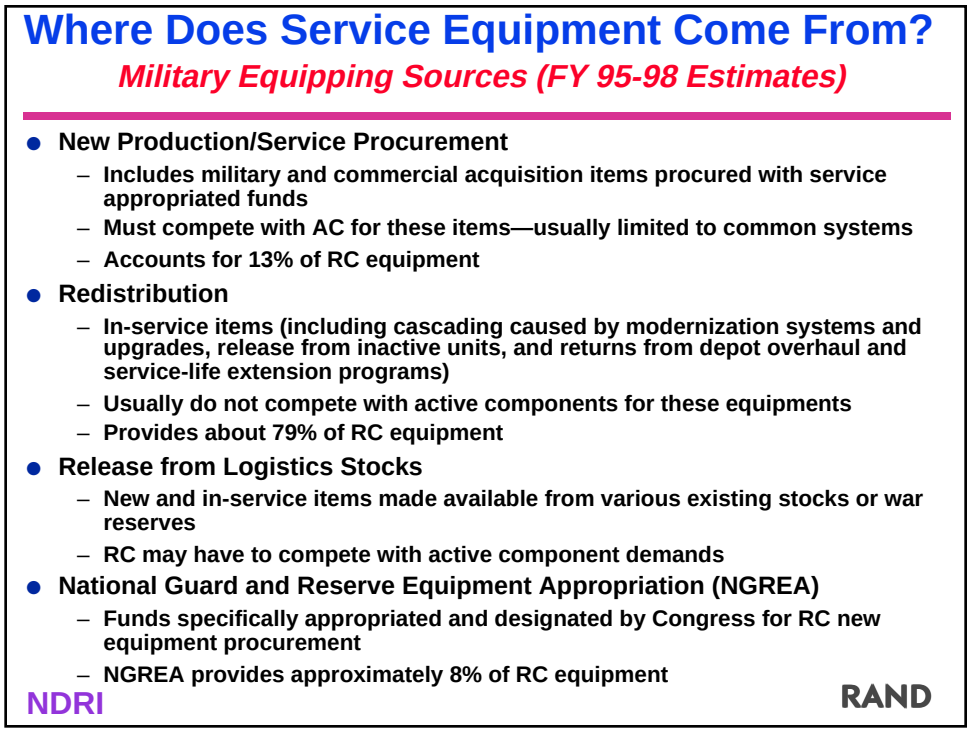


This section discusses the research and analysis conducted within Task 1, which reviewed service equipping policies and procedures. It should be noted that our purpose was not to establish the existence of shortages or equipment readiness problems within the RCs, as DoD has documented this fact in its annual official reports to Congress. For example, the National Guard and Reserve Equipment Report (NGRER) for Fiscal Year (FY) 1997 states that "the RC are not equipped to meet the national defense strategy, particularly in CS/CSS equipment." (DoD, 1996a, p. 1.)



KEY ISSUES FOR TASK 1

The key equipping issues that Task 1 addressed are listed above. The first two issues were the focus of a "top down" policy review and analysis. The last two issues identify and analyze the service procedures concerning the implementation of equipping policies and assess whether they support department policy and assist in eliminating RC equipment shortages.



SOURCES OF EQUIPMENT FOR THE MILITARY SERVICES

There are essentially two types of military equipment: new and in-service equipment that fall into the equipping source categories shown in the chart. The military obtains new equipment through its various acquisition activities, which are funded with appropriated procurement funds. Congress has provided annual appropriations to support DoD's requested procurements for each of the military services, and since FY82, Congress has also provided unrequested appropriations to purchase selected amounts of National Guard and Reserve equipment.[7] While the RCs generally obtain some new equipment each year, both through service appropriations and DPP, the primary source of RC equipment has been through the redistribution of in-service military equipment drawn from units. Smaller amounts have come from logistics stocks or repair and maintenance activities that have returned equipment to service. How the

[7]These appropriations are referred to variously as the DPP and the NGREA. In FY97, Congress authorized some $805 million for the procurement of aircraft, vehicles, communications equipment, and other equipment for the RCs under the NGREA section of the Defense Authorization Act.

services set priorities for receipt of equipment and provide the associated resources for the transport, repair, and issue of in-service equipment was included in Task 2 evaluation in this study.

RC Equipping Comparisons

NGRER Estimated Value of FY95–98 Projected Deliveries ($000s)

Source / Service	Redistribution		Procurement By Services		NGREA Procurement		Total	
Army RC	$2,174,685	67%	$748,914	23%	$323,169	10%	$3,246,768	18%
USMCR	$117,116	27%	$54,035	13%	$252,622	60%	$423,773	2%
Navy RC	$4,074,920	71%	$1,327,865	23%	$313,400	5%	$5,716,185	31%
USAF RC	$8,157,550	90%	$262,699	3%	$604,292	7%	$9,024,541	49%
Total	$14,524,271	79%	$2,393,513	13%	$1,493,483	8%	$18,411,267	100%

Redistribution is the principal RC equipment source

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SCOPE OF RC EQUIPPING

Since the services provide between 70 and 80 percent of RC equipment through redistribution, a sound understanding of the redistribution policies and management systems, their relationships, and their effectiveness became another key aspect of the study. The chart summarizes the value of FY95–98 projected equipment deliveries to the RCs. It should also be noted that RC equipment, excepting that provided by NGREA, is resourced by the respective service appropriations. Hence, the study will also examine the Planning, Programming, and Budgeting System (PPBS) within DoD and the services as it applies to the equipping function.

Fielding of equipment to the RCs in particular, whether through procurement or redistribution, may be affected by a multitude of factors including the condition and location of equipment available for issue; supportability of equipment due to age and availability of appropriate repair parts and maintenance support equipment; funds to support transportation of equipment ready for issue; access to facilities and funds to upgrade or modify equipment prior to issue; programming of resources to procure required equipment; priority for issue of available equipment (both new and in service); and force compatibility with in-service or newly

procured equipment. A thorough understanding of these interrelated factors was essential to determine holistic measures of effectiveness for service programs.

DEPARTMENT OF DEFENSE EQUIPPING POLICY

DoD Directive 1225.6, "Equipping the Reserve Forces" requires the military departments to "procure, distribute, store, and maintain sufficient equipment . . . to the Reserve Components . . . to satisfy training, operational requirements, and mobilization readiness." (DoD, 1992, pp. 2–3.) This directive requires that "Reserve components of each Military Department will be equipped to accomplish all assigned missions . . ." and establishes the DoD long-range goal "to fill the wartime equipment requirements of the Reserve components in accordance with the Total Force Policy." (DoD, 1992, p. 1.) The effect of this requirement is to require the military departments to equip their forces in the order of planned wartime deployment, which is often referred to as "first to fight is first equipped" or equivalent statements.[8] This DoD policy also requires military departments to establish equipping policies and to develop necessary procedures that implement and track the equipping of reserves and "replace missing or obsolete equipment currently found in the Reserve components as a matter of priority." (DoD, 1992, p. 4.) We review these individual service policies and procedures in the subsequent sections as part of our Task 1 efforts and identify some key insights into the effectiveness of their implementation.

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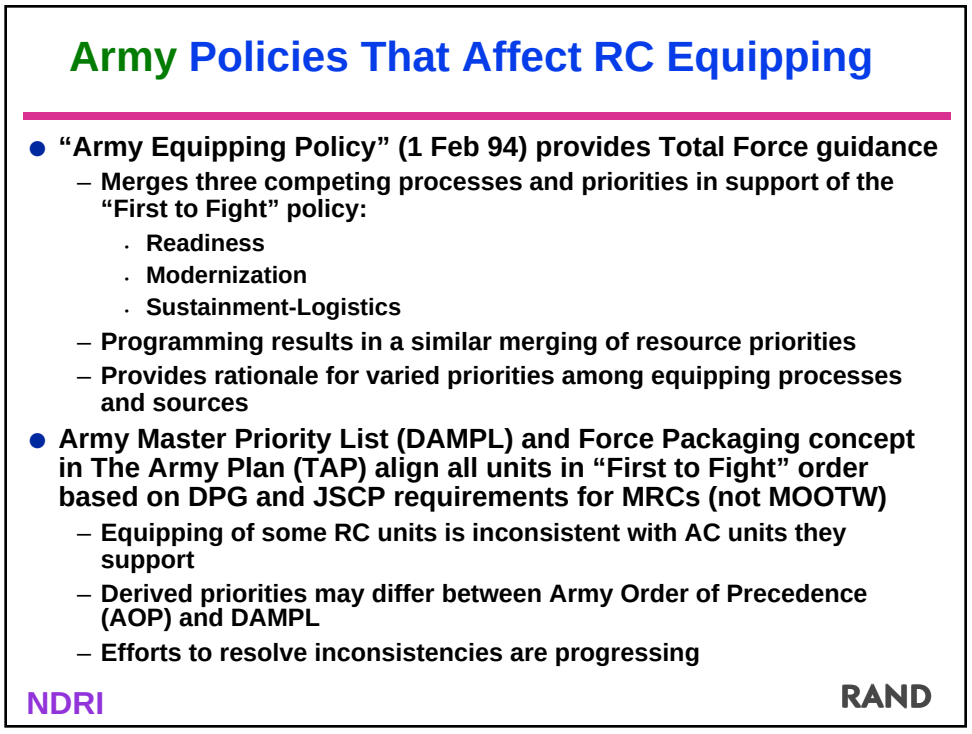
[8]Since service force deployments for wartime operations are based upon the Time Phased Force Deployment List (TPFDL), which supports selected CINC Operational Plans (OPLANs), this policy is often referred to as "TPFDL-based" resource planning.



ARMY POLICIES AND PROCEDURES

The principal policy that addresses equipment matters for the Total Army—Active Army, Army National Guard, and Army Reserve—is the "Army Equipping Policy" (AEP) (Army, 1994).[9] This policy applies to all types of Army units[10] in all three components and "serves to integrate modernization initiatives, which are a function of equipment and force structure, with unit readiness as it pertains to equipment resources." (Army, 1994, p. 1.) It also provides guidance on the initial distribution and redistribution of Army modernization equipment and complements logistics guidance on the redistribution of other in-service equipment.

The AEP attempts to merge three diverse and potentially conflicting equipping objectives: readiness, modernization, and sustainment logistics. However, the implementing procedures do not seem to

[9]We later obtained a copy of the coordinated draft of the next iteration of this Army policy letter, which showed improvements in the manner of deconflicting these competing equipping priorities.

[10]Army units designed as Table of Organization and Equipment (TOE) make up the deployable forces, and those designated Table of Distribution and Allowance (TDA) make up nondeploying support structure.

accomplish the policy objectives. In fact, three distinct sets of priorities established for varying equipping processes exist to satisfy competing objectives.

Readiness

The readiness set of priorities is established by what is called the "ERC/DAMPL" (Equipment Readiness Code/Department of the Army Master Priority List) sequence. The "ERC" component of this priority set establishes distribution priorities in the Army's readiness reporting policy for use in the Army logistics system. These priorities are designed to ensure that early deploying units obtain items critical to mission accomplishment (Army, 1993c). This policy establishes equipment readiness codes (ERC) in four categories:

- ERC A—primary weapons and equipment (PWE) essential to the highest-priority unit missions
- ERC P—pacing items, a subset of the ERC A equipment, made up of primary weapon systems essential to unit missions
- ERC B—auxiliary equipments that are next in priority after ERC A
- ERC C—administrative support equipments that are the lowest priority items

and issue priority designators (IPDs) at 15 separate levels that give highest priority to equipment by ERC in accordance with the unit's Force Activity Designator (FAD) established by DoD and assigned by the Army (Army, 1993c, Appendix B, pp. 56–58). This combined system directs the logistics system to support unit requests for equipment in DAMPL sequence and in accord with that unit's equipment needs based upon their criticality to mission accomplishment as determined by the ERC category (Army, 1995a, App. D, pp. 21–23).

The "DAMPL" component of this priority set refers to a single unit priority list that governs equipment and personnel resourcing activities of the total Army (Army, 1995a). The purpose of the DAMPL is to establish priorities for resources required to ensure the readiness of units likely to deploy in conflict or other operational requirements. The DAMPL lists all units assigned a unit identification code (UIC) in order of precedence for resources. Priorities assigned to units in the DAMPL are based upon the planning guidance for operational deployments and normally conforming to the TPFDLs that support the Operational Plans (OPLANs) for MRCs. The Army's sequencing methodology is designed to be consistent with the

DoD policy of "First to Fight, First Resourced (or equipped)." (Army, 1995a, p. 17.) The DAMPL priority sequence is updated twice each year.

Modernization

A second set of equipment priorities reflects the Army's modernization activities, which have three categories: equipment distribution plans; force structure activities; and logistics, acquisition, and sustainment activities. As described in the AEP, modernization activities have their distribution and, in many cases, redistribution priorities established by individual equipment distribution plans. The Army individually manages some 300 major weapons and support modernization systems, including such new and designated in-service equipment such as main battle tanks. In theory, these distribution plans follow the DAMPL sequence for distributing major items of equipment to units. However, the practice often departs from the DAMPL sequence, which results in distinctly different plans for each major item of equipment, both new and in service, controlled by the force modernization organization.[11] So normal are these modernization exceptions to the DAMPL that the Army has termed these exceptional sequences used in a specific equipment distribution plan as an Army Order of Precedence (AOP).

The Army distributes modern equipment in a sequence different from the DAMPL because it is pursuing different goals from those that underpin the DAMPL. It not only wants the highest possible readiness, but it also wants to integrate new equipment fully into the force. For example, training institutions have low priority in the DAMPL because they do not deploy for operational missions, but they need new equipment early to prepare and operate training courses for operators and maintenance personnel that could directly affect force readiness. Also, high priority early deploying units may only be able to accommodate a limited number of modernization actions without significant degradation in readiness. Avoiding these pitfalls often necessitates an exception to the DAMPL sequence. In general, the various AOP are tailored to meet the operational requirements of an individual materiel system and maintain unit readiness during equipment fielding periods.

Force structure activities are the second modernization category affecting equipment distribution. They include the many dynamic activities of

[11]Force modernization and force structure activities are assigned, managed, and integrated within the Army Staff by the office of the Assistant Deputy Chief of Staff for Operations and Plans for Force Development (ADCSOPS-FD). This agency is also the proponent for the AEP.

force management: unit activation, inactivation, consolidation, and redesign. A unit activation generates new demands for equipment; a unit inactivation provides in-service equipment for possible redistribution; consolidation of units may both result in new demands for equipment and make other equipment available for reissue; and redesign of a unit may be as simple as replacing one item with a more modern item of equipment that performs the same function or be a major reorganization with demands for major changes in function and equipment. The AEP establishes guidance for each of these activities.

Force structuring activities may also change established readiness or ERC/DAMPL requirements, in that these activities take precedence for certain periods for specified units. For example, a unit may not be activated unless it can reach a specified level in equipment and personnel upon its established activation date. This requires the unit, for possibly some six months prior to official activation, to receive a high priority for equipment and personnel. Usually, this temporary priority applies only to ERC P and A items of equipment, but this force structure action alters normal readiness and DAMPL priority sequencing.

Acquisition, Sustainment, and Logistics

Last, Army equipping policy accommodates acquisition, sustainment, and logistics objectives. The AEP states that these objectives normally support unit readiness, but once again, exceptions occur. The logistics system must replace equipment shortages in units to sustain required readiness levels. However, when specific units fall below established readiness standards, the logistics system temporarily assigns them a higher precedence than normally found within ERC/DAMPL priority sequence to correct shortages. Army policy provides for the use of the so called "out-of-DAMPL sequence" or exceptions to normal ERC/DAMPL priority to divert equipment (Army, 1994, p. 5). While this seems a reasonable adjustment, for critical items of equipment, it may improve the readiness of a lower-DAMPL-priority unit at the expense of retaining a shortage in a unit with higher DAMPL priority that has maintained its assigned level of readiness.

The logistics system also adds demands for equipment outside the unit DAMPL priority sequence.[12] Examples are equipment assigned to Operational Readiness Floats (ORF) of major units to maintain readiness

[12]It should be recognized that equipment needed for Operational Project and War Reserve Stocks is controlled by the DAMPL priority sequence and that these stocks are assigned discrete priorities.

of critical pacing items and Repair Cycle Floats (RCF) to support the operations of theater- or depot-level maintenance facilities. Another example is called "interchange" equipment, items provided from one acquisition project to another to ensure another system is complete for fielding.[13] Withholding HMMWVs from normal DAMPL sequence distribution to support the fielding of new communications and intelligence systems that are contained in shelters designed to be fitted on HMMWVs is an example of such an interchange activity. However, these new fully assembled mobile communications and intelligence systems are issued to units according to priorities separate from those of standard wheeled vehicles. These equipment requirements are based upon acquisition, logistics, and sustainment considerations. They are resourced within the general priorities for distribution of equipment to the units in the case of ORF, and the theater level of need for the RCF. These requirements must be filled to enable the logistics system to support units that need the equipment, but doing so may divert equipment assets from other valid readiness recipients.

Supporting the objectives of the AEP are the Army's requirements (both force development and materiel needs) and resource (e.g., PPBS) systems. These systems are designed and managed to support the needs of the total Army. The RCs are usually represented within these processes, which include the Total Army Analysis (TAA) force structure process, the programming and budgeting processes within the PPBS, and the Long Range Army Modernization Plan (LRAMP) and the Long Range Research, Development, and Acquisition Plan (LRRDAP), with the two planning processes addressing materiel requirements for the modernization process. However, these four processes appear to carry a strong priority bias for meeting AC needs, regardless of relative unit priorities, not withstanding the clearly apparent considerations for Total Force needs noted in the next chart.

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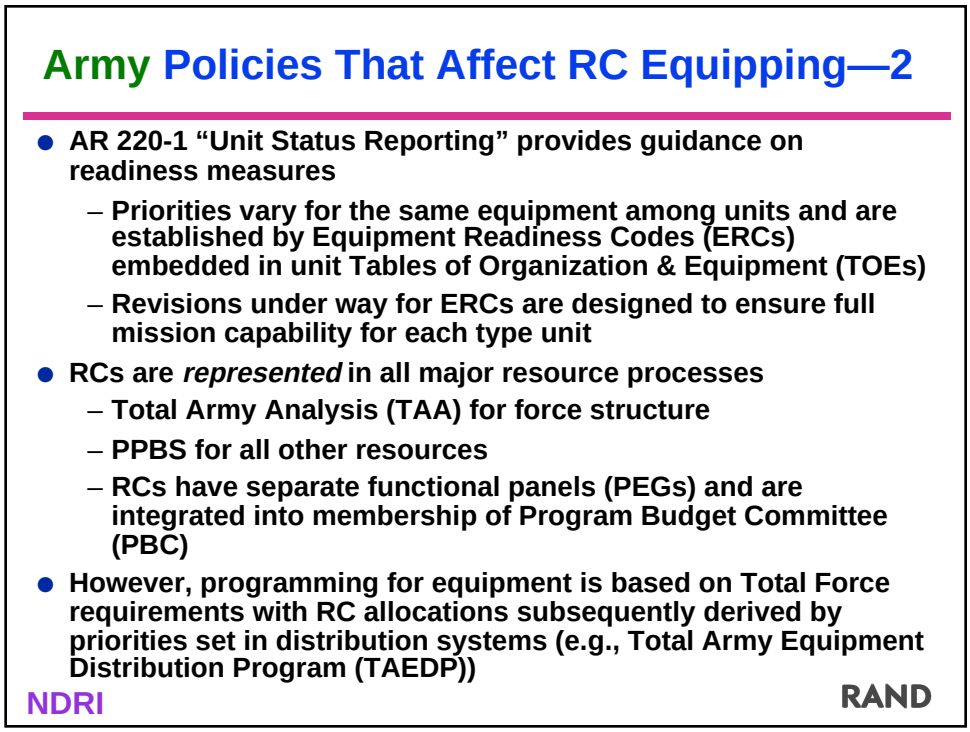
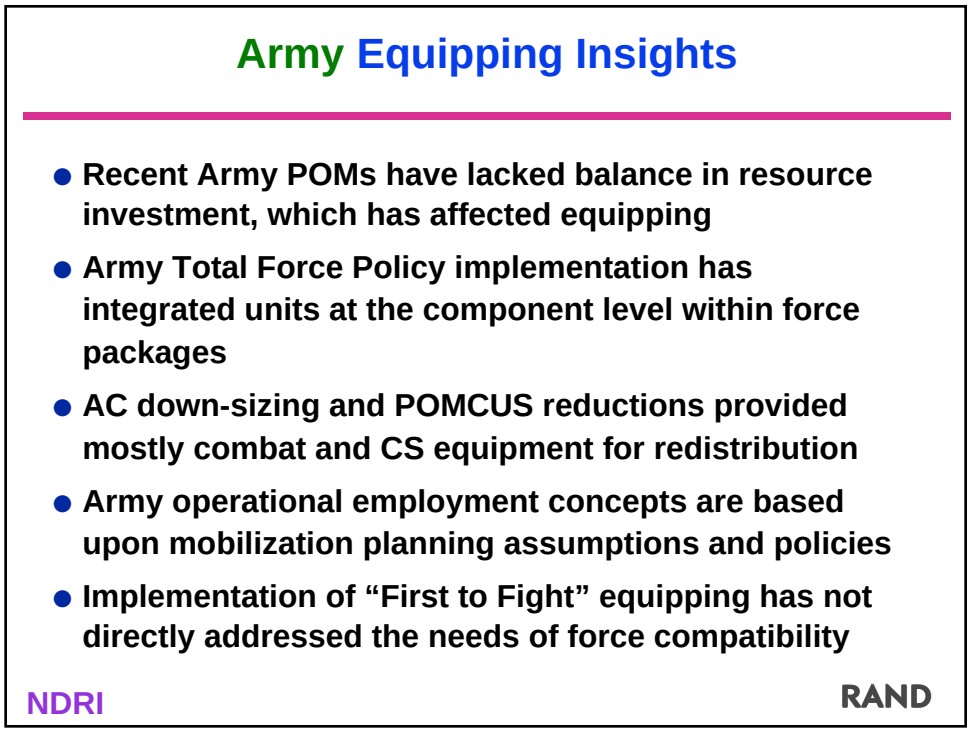
[13]This interchange process provides Government Furnished Equipment systems that form common major subsystems in other weapons and support systems.



The AEP fully recognizes the competing objectives and priorities for distribution of Army resources, more specifically equipment, and the potential for numerous exceptions. However, the general effect of these policies on the Army's RCs, which are not normally needed within the rapidly deploying elements of the force, is to assign them lower priorities for issue of equipment. While this result is generally consistent with the DoD equipping policy, the overall result is that many reserve units do not meet required and intended levels of equipment readiness, and resources are often not programmed to address their deficiencies. Further, RC units called for use in peacetime missions, often disregarding the DAMPL, may not possess their full complement of modern or compatible equipment.



INSIGHTS ON ARMY EQUIPPING

Having reviewed the Army's key equipping policies and procedures, we researched their effect on the RCs from a top-down perspective. The insights we gained from this effort are discussed in the following sections and summarized above and in the following chart.

Our review of the Army's resourcing processes and decisions over the last five or more years reveals that the Army program has been consistently rated by the Army and reported to OSD as unbalanced. This imbalance results from decreased investments, especially in new equipment, which were taken to offset increased demands in operations and support, in conjunction with an overall decrease in total Army resources. Resource priority has been given to readiness, sustainment, and force structure. The major investment area targeted for resource reductions has been Army modernization. The net effect has been a significant reduction, in both quantities and types, of the procurement of new Army equipment with little decrease in requirements. The resources that were provided to modernization focused on key warfighting enhancements for the early deploying elements of the force in the near term and research and development of new capabilities in the long term.

Consequently, current policies result in the RCs getting new equipment much later than active units. Army resources for new equipment, excepting the small amounts of NGREA that supported procurement directed to the RCs, generally focused on active units, and the in-service equipment displaced from active units through modernization has been the principal source for reserve equipping. This cascading of equipment has largely depended upon the Army's procurement of new items and the inactivation of active force units. For combat weapons and other systems, where upgraded capabilities are obtained on a cyclic basis covering several years for development, procurement, and fielding, redistribution of cascaded equipment will eventually improve capabilities to the RCs. However, in other equipment areas, where the majority of systems are for CSS functions and the largest density of equipment requirements is in the RCs, there are few instances where Army resources have been allocated to replace shortages or modernize aging capabilities. Also, where the Army has decided to procure items of the same type for the entire force, such as new combat radios, the resource constrained process is programmed to be spread over 7–10 years, with the RCs receiving this equipment late in the schedule (Army, 1995b, pp. 13–14).

The reorientation of military strategy to MRCs at the end of the Cold War reduced force requirements, reordered force deployment needs, changed designs for some units, and changed some unit readiness priorities. The Army responded to the new environment by changing its force packaging to contain mostly active contingency force units and mostly reserve contingency support package units. This realignment of units also reflects changes in DAMPL priority sequences over the past several years. However, the packaging of units remained based upon the fundamental precept that the RCs will mobilize to support any major regional conflict, and time for post-mobilization unit preparations will be allowed for in deployment schedules following the revised "first to fight" sequencing. Readiness resource levels are also assigned following this sequence, with combat units required to achieve the highest levels before deployment and CS/CSS units allowed to deploy at lower readiness levels, which accept degraded unit capabilities and higher levels of equipment shortage.[14]

During this same period, 1991–96, the Army downsized the active force by approximately 30 percent and the RCs by over 10 percent, while reconfiguring the composition of the total force. These composition changes have also reoriented the demand for types of equipment within the components. This process reduced the Total Force demand for

[14]The Army assigns its deployment standards for units in the Army Mobilization Planning and Execution System (AMOPES).

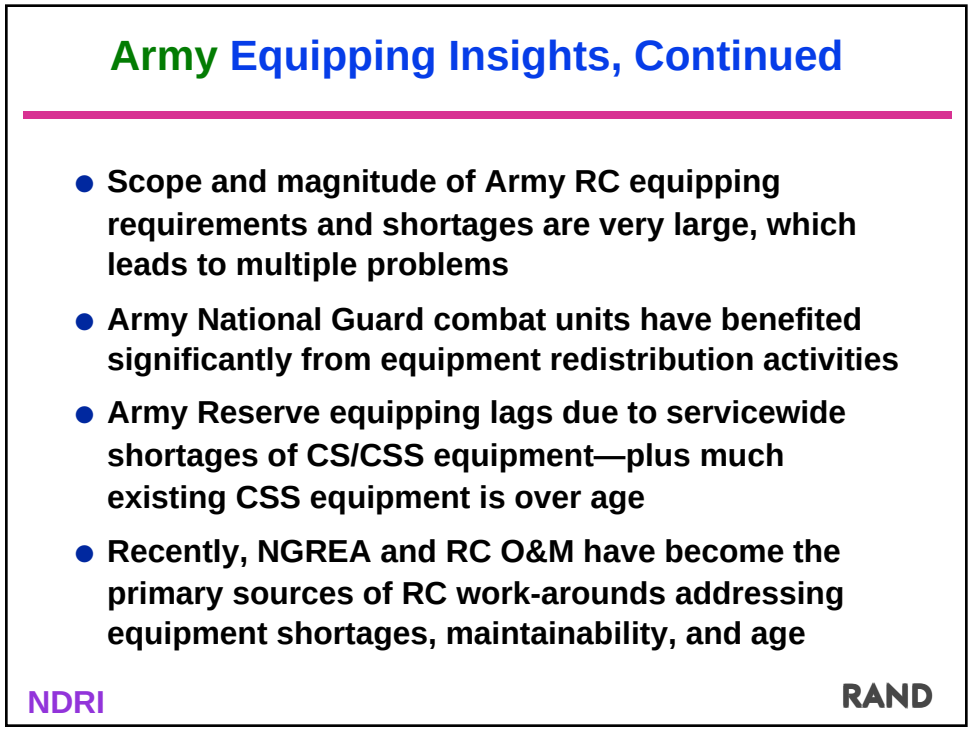
equipment through inactivation of units and had the added benefit of making in-service equipment, from these units and no-longer-needed theater stocks, available for redistribution to the RCs.[15] The change in force composition has resulted in an AC consisting largely of combat and CS elements, a large Army National Guard similarly composed (eight combat divisions and eighteen combat maneuver brigades), and an Army Reserve that is primarily made up of combat service support elements (Army, 1995b, pp. A-1 to A-7, and Perry, 1996, pp. 146–147).

A majority of units removed from the force were combat and CS forces. For example, the active Army inactivated the equivalent of eight combat divisions, and the reduction in the European Prepositioned Materiel Configured to Unit Sets (POMCUS) was primarily combat unit sets of equipment. Thus, the principal items of in-service equipment made available for redistribution from these downsizing actions have largely been recent-model combat equipment. The associated items of equipment in these same units—trucks, generators, radios, trailers, etc.—were mostly less-modern equipment, often incompatible with the needs of the remaining Army units.

While the primary objective of Army equipping efforts supports the "first to fight" principle, implementing procedures may impede efforts to achieve force compatibility on future battlefields. With the active Army combat units relying upon many reserve CSS units for support in regional conflicts, the variance in DAMPL priorities often results in incompatible equipment among units. An example often cited is the lack of uniform tactical mobility between combat forces with modern weapon systems and new trucks and reserve support units with older model, less-capable vehicles that are not able to sustain the same speed and operational cycles. Another example is found in the various echelons of maintenance for key modern systems. Often the active unit has received the modern weapon system and also has the appropriate organizational and support levels of maintenance equipment compatible with the new system. However, the higher echelons of support maintenance, usually found in the reserves, may often lack equipment necessary to support the new items because of the differences in equipment procurement quantities and distribution priorities. The result in either case may be equipment incompatibilities between forces assigned to the same operation. Units called and sent to MOOTW contingencies may exacerbate this lack of compatible force equipment since they may have lower DAMPL priority than their active

[15]In addition to unit in-service equipment made available through unit inactivations, reductions in Cold War theater war reserve stocks and the POMCUS in Europe have been major sources for redistribution of in-service Army equipment.

counterparts in those operations and are accordingly equipped with older model equipment that is not standard for the majority of units involved.



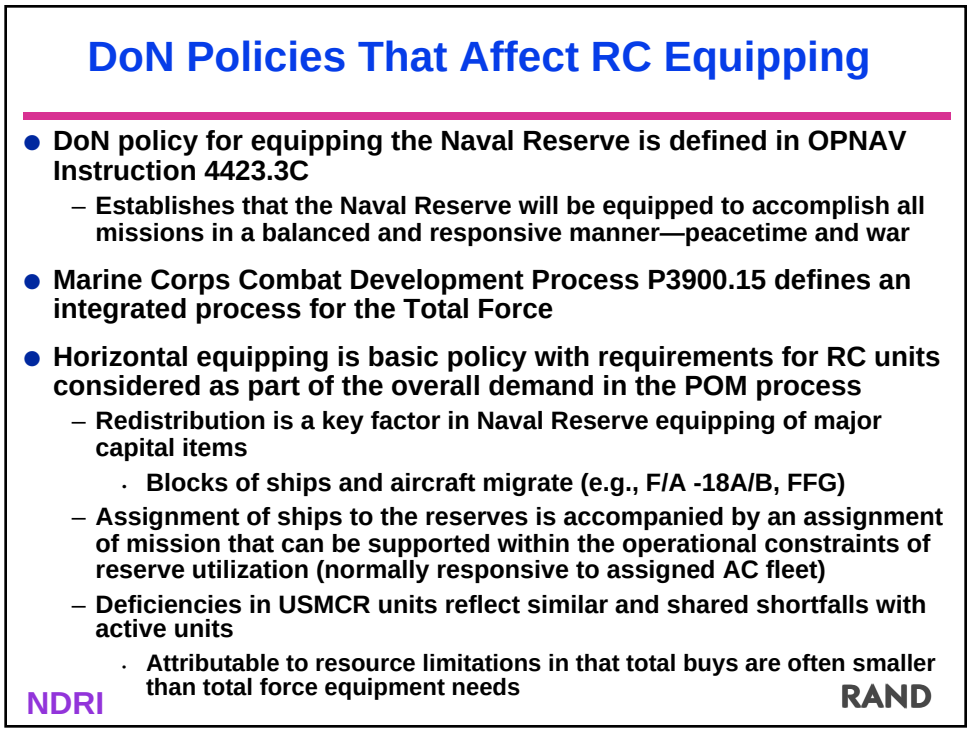
Another insight into Army equipping that sets it apart from the other military services is the scope, diversity, and magnitude of equipment requirements. Army equipment covers a wide spectrum, from sea-going tugs and landing craft, to several types of fixed and rotary wing aircraft, to the multitude of combat weapons and support equipment systems required for sustained land warfare. The size of Army requirements appears commensurate with it being the largest U.S. military service and with large quantities of equipment needed to perform even simple tasks. For example, the Army requires three groups of wheeled tactical vehicles: light, medium, and heavy. Each group is composed of numerous models and types to perform specific battlefield tasks: weapon platforms and carriers, troop carriers, equipment carriers and towing vehicles, ambulance services, vehicle retrievers, cargo and ammunition transporters, and heavy-equipment transporters. The quantity for something as common as a five-ton capacity truck exceeds 62,000 items for the Total Force.[16] This scope and complexity of requirements adds other important dimensions to the Army's equipping problem, and it requires stable resourcing to ensure currency of in-service equipment.

[16]*The U.S. Army Modernization Plan, Volume II, Annex F*, January 1993, pp. F-13 to F-19, F-31.

The effect of following these complex processes with multiple objectives and priorities, taken together with the downsizing and restructuring of the Army, has had different effects on the equipment postures of the two Army RCs. On the one hand, the Army National Guard has benefited in large measure from reconfiguration to a primarily combat and CS force whose equipment demands are being satisfied with redistribution of available in-service equipment with improved capabilities. The equipment projections for major combat equipment items provided to us by the Army National Guard suggest that few shortages will remain at the end of the decade. On the other hand, the Army Reserve, composed of CS and CSS units, received comparably less in-service equipment from these redistribution actions, and much of that was older model, less-capable equipment. Further, over the past decade the active Army has invested few resources to procure new combat service support equipment, with the exception of trucks, which restricts the potential for improving equipment readiness of many CSS units in the Army Reserve.

The result has been that the Army RCs depend upon NGREA to resolve many equipment readiness problems. However, as mentioned previously, this limited resource has often been directed to either specific types of equipment or generic groups, which restricts its utility in addressing equipment readiness shortages. Further, for items needed in the RCs that are not being procured by the active Army, it may not be possible to initiate acquisition in the small amounts supported by NGREA funding. While the use of NGREA resources appears to be largely directed at readiness needs, it lacks predictability and stability to address major long-term equipment problems in the RCs.

A recent innovation on the part of the Army RCs has been the use of RC personnel (i.e., NGPA and RPA) and RC operations and maintenance (i.e., OMANG and OMAR) funds to revitalize existing in-service equipment. Both the Army National Guard and Army Reserve have selectively applied these resources to improve the capabilities of portions of their large wheeled vehicle fleets. These upgraded vehicles help to compensate for differences in compatibility between the AC and RC elements in early deploying force packages, but generally they apply only to in-service systems and therefore do not help to reduce existing shortages. While these efforts are largely initiated as self-help efforts by the respective RCs and benefit the Total Force, they appear to be only temporary fixes that fail to address the full scope of problems resulting from the lack of support for RC equipping requirements within the higher order Army resource processes.



NAVY AND MARINE CORPS POLICIES AND PROCEDURES

The chart summarizes the findings of our review of Department of the Navy (DoN) equipping policies.

The Navy and Marine Corps implementation of DoD guidance is shaped by the Secretary of the Navy. Each of the two services has different systems of instructions and orders for guiding acquisition of equipment and distribution of resources. Since they share common civilian leadership, any investigation of policy and procedures must begin with Secretariat guidance. The Navy and Marine Corps differ from the other services in that they have no National Guard and therefore less identification with the individual states. In addition, although the Naval Reserve has played a big role as the Navy surged in size in World War II, the post-war role of the reserves has shifted to that of an augmentation force in which individuals bring active units up to full strength or replace shore-based sailors who in turn bring active units up to wartime complements. Ships and aircraft assigned to the reserves generally focus

on training, with occasional operational missions.[17] The Marine Corps has historically associated reserves with its Fourth Division, but its current concept is to employ smaller units (companies and battalions) in an integrated Total Force consistent with the readiness and availability of these individual pieces.[18]

The Secretary of the Navy's policy is described in SECNAV Instruction 1001.37 of 19 October 1992, which, for the Navy, is implemented in OPNAV Instruction 1001.21A (Navy,1994).[19] Navy policy is based on the Total Force policy in the SECNAV guidance. It includes the following guidance:

> Equipping the Naval Reserve Force. Platforms, systems and equipment will be horizontally integrated within Navy Active and Reserve Components to ensure their full interoperability and maintainability throughout both components of Navy. Units in mission areas predominantly assigned to the Naval Reserve will equip for the full warfighting requirements of the mission. (Navy, 1994, Enclosure [1], p. 9.)

Marine Corps Total Force policy is provided in the Commandant's Planning Guidance (CPG) of 1 July 1995 and is implemented through the Marine Corps Combat Development Process (Marine Corps Order P3900.15 of 10 May 1995). General Krulak's guidance on the role of the Reserves is the strongest and clearest policy encountered in the course of this research:

> My experience has led me to believe that there is only one Marine Corps—a Total Force Marine Corps. The days of two Marine Corps are gone . . . forever. Our active and reserve components will be broadly and seamlessly integrated, and indivisible as a balanced warfighting force. The full acceptance of this reality is critical to our future.

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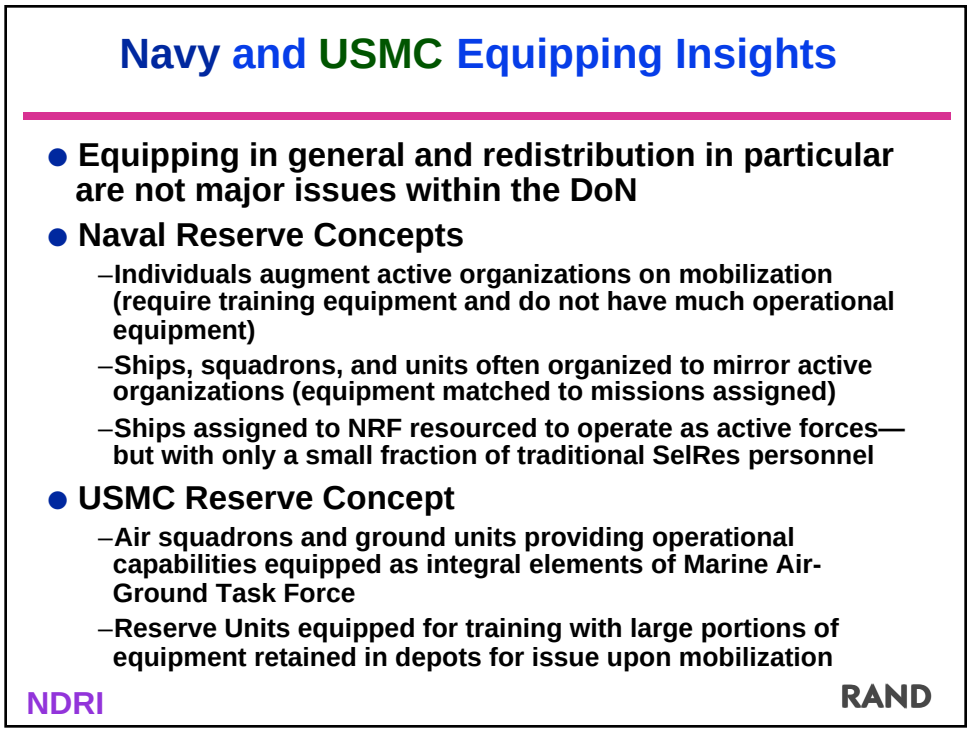
[17]For instance, Naval Reserve frigates that are assigned to the operational fleets conducted a recent international presence mission in the UNITAS cruise (UNITAS was an exercise series involving U.S. and South American countries). Also, Naval Reserve Patrol squadrons (known as VP units) routinely provide P3 aircraft and crews to support a portion of peacetime CINC flying requirements.

[18]These general statements about DoN uses of reserves are intended to provide a brief introduction to the different cultures of the two sea service reserves. There are too many counterexamples of specific units and capabilities in which the reserves provide the bulk of the Navy's capability or the only capability to cite them all here. A few examples are the mobile inshore undersea warfare units, counter-mine craft, aggressor squadrons, and civil affairs groups.

[19]This instruction contains a detailed Naval Reserve Policy Statement tied to Title 10 missions.

> (a) Equipped and trained to the same standards as their active counterparts, the readiness of the Selected Marine Corps Reserve (SMCR) is further enhanced through training and education with the active component. . . . MARFORRES training will be a goal and objective of every training event above the battalion/squadron level. (Marine Corps, 1995, p. 9.)

Both the Navy and the Marine Corps conduct capability-based reviews of proposed programs in their respective POM development processes. Resource managers for major equipment categories (aircraft, ships, combat vehicles, etc.) review and restructure programs and establish priorities for review by senior officers and the Navy Secretariat. The Total Force policy has integrated reserve officers into the staffs of the Navy platform sponsors (Expeditionary Warfare, N-85; Surface Warfare, N-86; Submarine Warfare, N-87; and Air Warfare, N-88), as well as the programming division (N-80). Reserve programs are not addressed separately, so Total Force priorities lead to decisions about where the line is drawn and whether missions need to be adjusted based on funding tradeoffs. For example, there may not be sufficient resources to equip Naval Reserve fighter squadrons with the same capabilities as the active squadrons, but their assigned aircraft may be adequate to support the missions assigned to these units, such as serving as aggressor forces for training pilots. It may be the case that missions were changed because of equipment funding shortfalls, but that is not necessarily a problem as long as the missions contribute to Total Force capabilities and readiness. This change in mission also obviates equipment incompatibility for most equipped Naval Reserve units including air and surface forces.



INSIGHTS ON NAVY AND MARINE EQUIPPING

Our discussions with headquarters staffs have indicated that equipment deficiencies for reserve units are routinely being identified to support internal Total Force program prioritization and to support RC commanders in responding to congressional reviews for directed procurement. Recent DoN funding in NGREA has been on the order of $100M, while redistributions for both FY95 and FY96 have been valued around $1B each year, even if the operational reserve carrier valued at $2,165M is excluded.[20] Navy redistribution will result in substantial modernization and increased capability for the Naval Reserve as nearly new mine-warfare ships flow into the reserve.

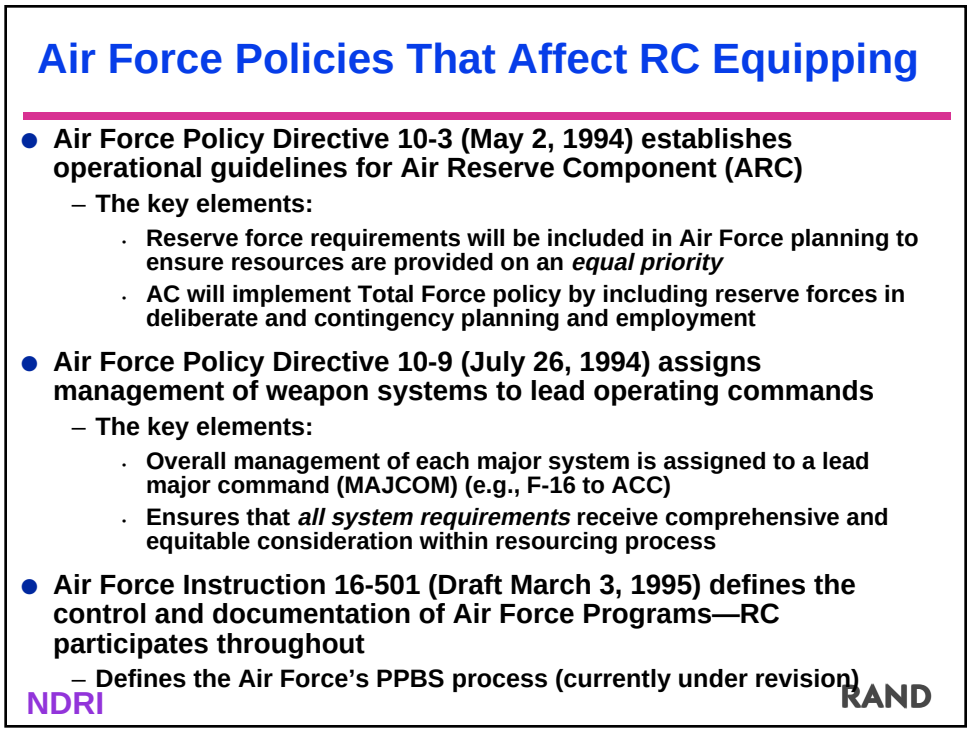
The Marine Corps Reserve, as previously noted, appears to be tightly linked with the active forces. NGREA funds, about $120M in FY94, are a more significant factor for the Marines because there is no redistribution

[20]Although the concept of operations for the reserve carrier is evolving, its role is likely to be quite different from other reserve units. Because the investment cost of this one ship overwhelms any other reserve equipment costs and because it will not be closely linked to the reserve air wing, the reserve carrier will not be included in the bulk of the examination of reserve equipping policy and implementation.

comparable to the movement of Navy ships into the reserves. It appears that equipment shortages for the Marine Corps Reserve mirror shortages in the active force and reflect overall consequences of limited funds rather than a neglect for lower-priority forces. Fielding plans for new systems are always sequenced to match deliveries, so some units will receive new equipment first. It would not be surprising to find early deliveries going to active units. Subsequent phases of this research examined the implementation of horizontal equipping policies to ascertain the impact of this policy on servicewide equipment compatibility. These assessments are discussed later in this report.

Another unique aspect of Marine equipping is the use of storage depots for equipment required for a deployed reserve unit but in excess of training allowances. Reserve units do not need full wartime complements of equipment to train and often lack the facilities to support a full allowance even if it were distributed. Instead, pools of equipment are centrally maintained in depots for both active and reserve units and serve as war reserve material. When a reserve unit deploys, it either draws equipment from the depot to bring it up to full readiness, assembles on prepositioned equipment sets, or obtains the equipment left behind by earlier deploying units. Because the Total Marine Force uses mostly common equipment, which ensures compatibility, the Total Force pool must be a consideration in examining the resourcing of the reserves. Later phases of this research examined selected common items for sufficiency in meeting both Marine requirements.

Coast Guard equipping policies and procedures are the responsibility of the Secretary of Transportation. Since the DoD does not control or review these policies and procedures, our research was limited to the effectiveness of procedures to equip the Coast Guard Reserve in its role of supporting DoD missions, which is discussed in later sections.



AIR FORCE POLICIES AND PROCEDURES

A number of directives and instructions define the guidelines by which the Air National Guard (ANG) and Air Force Reserve (AFRES) are equipped.[21] Air Force Policy Directive 10-3 determines the guidelines for the ARC (Air Force, 1994a). The directive, revised and approved in May 1994, establishes the policy to integrate the ANG, AFRES, and active Air Force fully into a Total Force. The directive specifically stipulates that all aspects of active and reserve forces must be considered when determining an appropriate force mix. The organization of the ANG and AFRES units parallels similar active force units with one exception: ARC units are sometimes separated to take advantage of state or regional demographics and cannot be centralized at major, multisquadron bases as is often the case with active forces. Based on a policy of Total Force and its resourcing, the ARC receives "equal priority" with the AC in the identification of requirements and the allocation of resources (Air Force, 1994a, pp. 1–2).[22]

[21]The ANG and AFRES are referred to collectively as the Air Reserve Component (ARC).

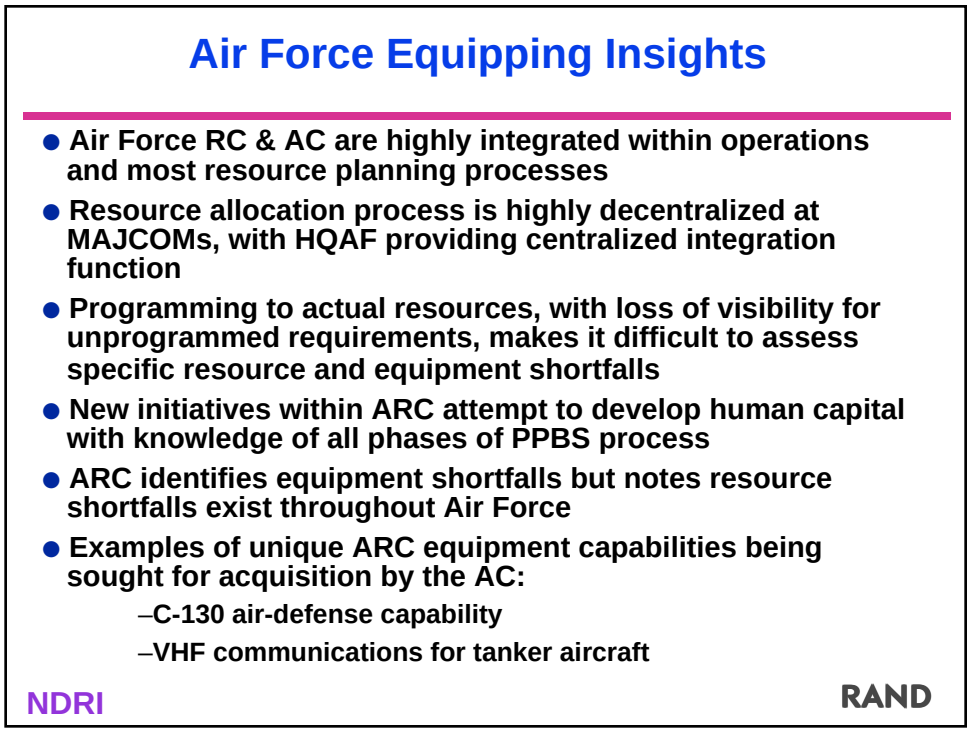
[22]Our research developed some evidence that the policy did not always hold in practice, and we provide some examples in our subsequent discussions.

The Air Reserve Component (ARC) policy directive is supported by Air Force Instruction 10-301, which defines the responsibilities of the ARC forces, and Air Force Policy Directive 10-9 (Air Force, 1994b). The latter directive is important because it assigns responsibility in the Air Force for overall management of each weapon system to a "lead command" to ensure that all requirements—including manning—associated with every system receive comprehensive and equal consideration. The lead-command concept is important to equipping because it provides a primary input into the process for articulating a "user" requirement and functioning as the proponent of a capability while it is in development and fielding.[23] Within the context of resourcing, the directive establishes that a lead command for a weapon system is responsible for both active and ARC forces and for setting priorities for requirements, resources, and schedules within the context of Total Force policy (Air Force, 1994b, paragraphs 1.3 to 1.4). The directive specifically notes that the lead command is the weapon system advocate and will respond to issues addressing weapon system status and use. As will be discussed in greater detail later, this places the responsibility of ensuring that ARC requirements for a particular piece of equipment are identified and incorporated into the PPBS-related activities that occur at the Air Force Major Commands (MAJCOMs).

Air Force Instruction 16-501, currently a draft and under revision, defines the PPBS process within the Air Force. The resourcing structure prescribed by the instruction requires issues, including equipment, to be addressed within the context of an integrated Total Force. The MAJCOMs are responsible for identifying the requirements associated with their programming areas, which are generally based on the operations and functions they perform. This instruction indicates that ARC equipping issues (in terms of identifying those requirements necessary to perform the missions assigned to that particular MAJCOM) are dealt with at the MAJCOM level. The ARC resourcing issues are further represented at the Air Staff through the resource allocation (RA) teams which determine the fiscally constrained resource priorities within the seven Air Force mission

[23]The Air Force has six major commands and two component commands. The six commands, which also function as proponents and lead commands for weapon systems, are Air Combat Command (ACC), Air Force Material Command (AFMC), Air Force Space Command (AFSC), Air Force Special Operations Command (AFSOC), Air Mobility Command (AMC), and Air Education and Training Command (AETC). The two components that do not have lead-command responsibilities but play a critical role in defining needed future capabilities are Pacific Air Forces and U.S. Air Force Europe. See Defense Almanac, 1994, p. 12.

areas. The process appears to integrate the ARC equipping needs throughout.



INSIGHTS ON AIR FORCE EQUIPPING

The integrated nature of the AC and ARC within the Air Force attempts to ensure that resourcing issues, including equipping, are based on the needs of operational mission areas rather than on separate component requirements. Our insights on how these policies affect equipping in the Air Force are shown in the chart.

The Air Force relies on the ARC to perform many of its operational missions; in fact, some missions are performed entirely by the ARC. Within the flying units, Weather Reconnaissance, Aerial Spraying, Strategic Interceptor Force (U.S. based), and Tactical Reconnaissance are performed completely by either the ANG or the AFRES. In addition, the Air Force also has a number of associate units in which AFRES personnel share mission and aircrew responsibilities using the equipment of AC units; included are such mission areas as strategic airlift, tanker/cargo transport, and aeromedical evacuation. Similar integration of the ANG and AFRES with the AC has occurred in non-flying units in such areas as Engineering Installation, Aerial Port, Combat Communications, and Tactical Control, where responsibilities are shared between the AC and ARC (DoD, 1994a, p. 18).

Since 1989, the Air Force has increasingly decentralized its resource identification and management processes.[24] The most recent activity is the redesign of the fiscally constrained requirements and prioritization process known as the Mission Area Planning System (MAPS). The MAPS process charges the MAJCOMs with defining and establishing their priorities according to their mission areas of responsibility.

Integral to the redesign of the MAPS process is the further integration of ANG and AFRES to ensure strong participation. At some MAJCOMs, ARC participation is quite high, with members of the ANG functioning in critical assistant director and resource panel positions. These initiatives are part of an increasingly shared perspective that the ARC is critical to the total Air Force achieving its operational and resource objectives. The redesign of the Air Force long-range planning and fiscally constrained planning processes also includes strong ARC participation.

However, representation of ARC perspectives within all the MAJCOMs is not consistent, and the ANG and AFRES are not equally represented. Limited field work indicates that, at some MAJCOMs, the ARC has been successfully integrated into all resourcing activities. Anecdotal evidence even suggests that the ARC is representing total MAJCOM requirements at the Air Staff resourcing boards.[25] On the other hand, interviews also revealed that the level of integration was not consistent across all MAJCOMs but depended on the individual commander's perspectives and experiences and the relation of ARC involvement in the MAJCOM's mission responsibilities.

This notwithstanding, interviews with the Air Staff revealed that, at the headquarters level, the ARC's resource demands were well articulated through their development, presentation, and advocacy of their own resource programs and their broad representation on all the Air Force's key resourcing panels and deliberative bodies.[26] Interviewees indicated

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[24]In 1989 the Air Force underwent a major reorganization in response to congressional and OSD guidance that it reorganize its acquisition function to bring it organizationally and functionally into alignment with the Goldwater-Nichols Legislation. In 1991 the Air Force reorganized its PPBS functions, which further decentralized its resourcing activities, and placed the primary responsibility for these functions at the MAJCOMs.

[25]Air Combat Command, staff interviews, September 1995.

[26]At the conclusion of the planning and programming cycles of the PPBS, each of the military departments produces its fiscally constrained program, called the Program Objectives Memorandum (POM). In support of the Air Force POM, the ANG and AFRES produce mini-POMs, which input their resource demands, priorities, and justification as a way to ensure that their full array of resource needs are separately identified and

that they were strongly integrated at all levels of the Air Staff and actively participated in all phases of the planning, programming, and budgeting processes.[27] These supporting processes, combined with the Air Force's institutional perspective of a highly integrated AC and ARC, ensure that the ARC is equipped and resourced at a very high readiness level.

Although the ARC fully acknowledged that its resourcing issues are well articulated and represented throughout the PPBS process, ARC members also identified equipping shortfalls and some incompatibility of aircraft types. These issues formed an area of additional inquiry for the project team. Our insights in this area are discussed in the following section.

Research indicated the shortfalls are often attributable to how the Air Force hierarchically does its programming to actual resources. At the lowest level, the MAJCOMs, using the MAPS process, identify and validate their individual command's requirements.[28] Only those requirements that have been validated and received priorities are passed on to the Air Force Headquarters. However, these MAJCOM validated requirements generally exceed the Air Force's total available resources. The MAJCOMs' individual requirements are debated and prioritized within the total Air Force's requirements; the agreed set of total Air Force validated requirements is then resourced. This winnowing allocation process results in the decisions articulated in the Air Force POM.

The Air Force requirements and resourcing process, however, does not maintain an audit trail of the requirements that were not validated. Lists of validated-but-not-resourced requirements are sometimes maintained by the individual MAJCOMs but only if command plans call for subsequent attempts to resource them in the future. The lack of a formal requirements tracking system for total initial requirements versus what is actually resourced is emerging as a total Air Force issue. Resource shortfalls for

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adjudicated within the total Air Force program. This aspect of the programming process adds emphasis to the integration of ARC needs at the MAJCOMs.

[27]Air Staff Interviews, August–October 1995. This view, however, was not always shared by the Air Force Manpower and Reserve Affairs staff. They indicated in separate interviews that processes and activities that involved reserve affairs often did not include their perspectives or inputs. We were not able to determine if this was a problem related to how the Air Force Secretariat organizationally and functionally links to the Air Staff activities or if there was a disconnect between the ARC members on the Air Staff and those in the Secretariat.

[28]Some of the lead MAJCOMs have also negotiated Memorandums of Understanding (MOUs) with other MAJCOMs and the ARC as a way to improve the linkage of associated mission areas and provide all the members a broader and stronger framework in which to identify and negotiate their requirements and resource priorities.

required equipment or lack of compatible systems[29] noted in this process are not exclusive to the ARC.[30]

Research revealed that the ANG and AFRES are not equally represented in the deliberative bodies of the resource process at either the MAJCOMs or Air Force headquarters. Members of the ARC well acknowledged that the ANG has far more funding and mission flexibility to staff these resourcing billets at both the MAJCOMs and the service headquarters. For instance, ACC has identified approximately 30 to 50 resource planning and allocation process staff billets for the ARC; the majority of these billets, however, will be filled by the ANG. The purpose of this initiative is to train ARC members in the Air Force's resource allocation processes and develop knowledgeable personnel for the future. The inability of the AFRES to compete for these ACC slots has led to increased cooperation between the ANG and AFRES over how ARC issues will be identified and represented throughout the MAJCOM PPBS process.[31]

The ARC acknowledges that it is experiencing equipment shortfalls but notes that they are similar to those currently found throughout the Air Force. It views NGREA as both a help and a hindrance. The benefit is that it uses NGREA to overcome capability shortfalls not resourced in the formal Air Force process. However, the NGREA is also viewed by the Air Force as a source of additional resources and therefore hinders the ARC

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[29]Most ARC staff comments on compatibility problems focused on the variance in aircraft capabilities generally attributable to older series aircraft in the ARC versus newer series aircraft or modifications in the active Air Force. For example, F-16 models that allowed only certain operations to be performed in daytime have been assigned to ARC units, while the active units were provided all-weather, day-and-night capabilities. In this case, the lack of compatibility in needed operational capabilities restricted ARC employment.

[30]Discussions with staff resource planners at Air Combat Command (ACC) at Langley AFB, VA, revealed an internal audit that showed several incidents of validated but unresourced requirements no longer given visibility in the Mission Area Planning process. Unresourced requirements not being given further consideration included both individual equipment systems and modifications to aircraft platforms. This information was confirmed at the Air Staff as a routine method practiced throughout the Air Force in their resource process.

[31]Information received subsequent to our research indicates that the representation of the ARC on MAJCOM staffs is more in proportion to the unit representation within a command. For instance, ACC has a much higher proportion of ANG units, which supports this contention, while the AFRES has a higher staff representation at Air Mobility Command (AMC), based upon the number of units assigned to that command. Hence, each arm of the ARC has positioned its scarce staff personnel assets to have the greatest impact in accordance with its proportion of units within a MAJCOM. The cooperation seen between the ANG and AFRES at ACC is also reported at other MAJCOMs where the ARC staff representations may favor the AFRES.

from having its needs fully integrated into the formal Air Force resourcing processes.

The ARC has demonstrated that, on occasion, it has the ability to upgrade equipment either through the utilization of NGREA or through what is termed fiscal "work arounds." In this way, the ARC has provided some unique capabilities to the total Air Force. They point to the C-130 air self-defense capability, which included radar warning receivers and flare dispenser systems, and the rotating beacon equipment and VHF communications for KC-135 tanker aircraft. In the latter instance, this ARC capability enabled the Air Force to coordinate real-time Operation Desert Shield / Desert Storm critical in-flight refueling operations with civil air control authorities. Active Air Force tankers did not have this capability.[32]

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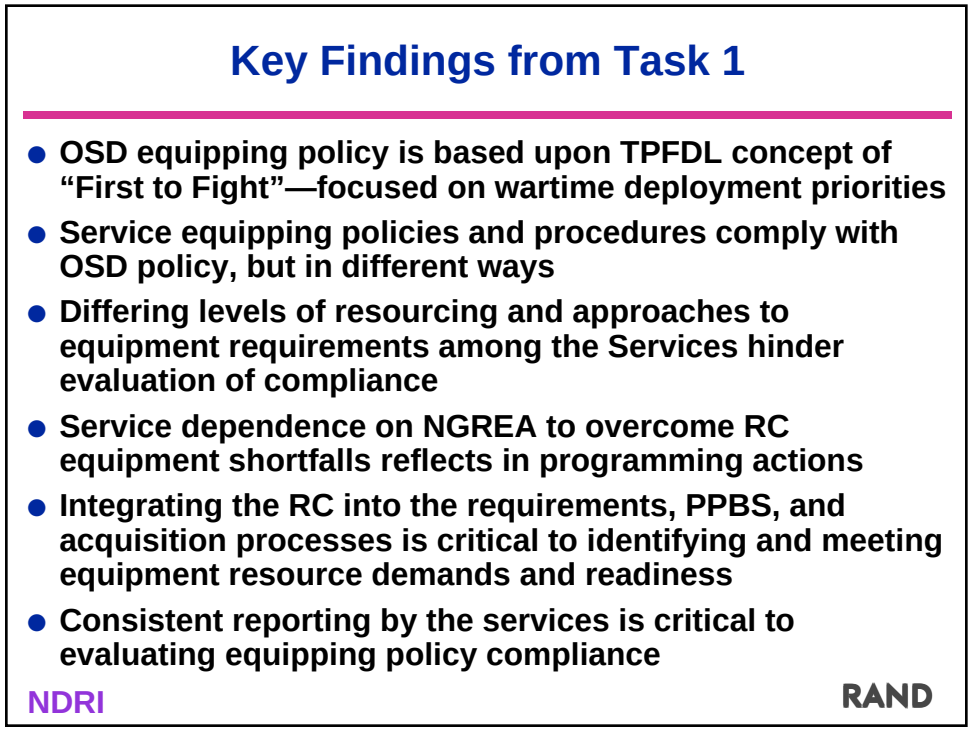
[32]RAND discussions with ARC staff members, July 1995.



KEY FINDINGS FROM TASK 1

This section reviews the overall findings of our Task 1 research and analysis.

This review of service equipping policies for the reserves has shown that, although specifics vary across the services, the OSD policy of "first to fight" receiving priority based on the demands of a two-MRC strategy guides service equipping policies. However, the cultural differences across the services are significant. The Army equipping policy of incorporating force packages or tiers results in many RC units being assigned to Force Package 4 (the lowest priority grouping), since they are not important in Army plans for fighting a two-MRC war. Future changes in defense policy may place more emphasis on MOOTW, placing more stringent requirements on CS and CSS units that could result in higher equipping priorities for RC forces, such as those assigned to Force Package 4. Because equipping priorities in the Army are assigned based primarily on warfighting requirements, lesser contingencies, which are increasing demands on the CINCs, may be under-resourced.

Although the service policies appear to be consistent with OSD guidance, all services rely on their own unique resource management processes to

meet policy goals. Austere funding and external (Congress and OSD) changes to service programs may result in deficient reserve capabilities because of equipment shortages, incompatibilities, or obsolescence. Resource balancing is an important service U.S.C. Title 10 responsibility, and it is easy to second-guess difficult resource trade-offs. On the other hand, systematic underfunding of RC units may occur in spite of policies to the contrary. The policy framework is in place to ensure the RCs get their appropriate share of equipment. The next step in our research will be to examine outcomes for specific types of equipment and processes.

A principal finding of this first phase of research is that service specific differences are so significant that common performance measures probably are not very helpful in comparing how the services equip their reserves. If a service, like the Marine Corps or the Navy, does not treat reserve requirements as a specific category in the POM development process, it is probably not useful to try to construct funding percentage summaries based on dollar value or number of end items. Similarly, if the readiness of some RC combat units does not affect Army performance in MRCs because mostly active combat units are required in current plans, relating RC equipment funding to readiness will not be uniformly productive. A possible compromise would be to relate RC units and their readiness to specific missions and capabilities. This mission-related readiness could then be assessed in the context of the importance of the mission vis-à-vis other missions and the risk associated with the readiness status, and the ability to substitute RC units for active units could also be made more explicit.

It is also clear that, in spite of service policies on horizontal integration, the directed procurement and special funding of the NGREA by the Congress is very useful to the reserves, and it improves their capabilities, often by accelerating fielding plans that would have otherwise relied on the much later flow of equipment to the reserves.[33] Flexible NGREA funding for small items to enhance training is particularly important in this regard. On the other hand, NGREA does permit service programmers to be less diligent in meeting RC needs because Congress has helped the RCs in this way in the past. Occasionally, directed procurements in NGREA may disrupt RC equipment readiness because the unrequested new equipment requires unprogrammed training and maintenance funding.

Where RC resources are separately managed in service requirements, PPBS, and the acquisition process, these managers need to participate in

[33]An example is in the SINCGARS radio system, which both Army RCs have purchased with NGREA funds well ahead of scheduled distributions based upon unit priorities.

decisionmaking bodies at all levels. In the Army, both the Army Reserve and the Army National Guard are much more vertically integrated and separated from decisions on Total Force capabilities than are reserves in the Marine Corps, where horizontal integration is the norm. The Chief of the Army Reserve and the Director of the Army National Guard should develop and maintain staff capabilities and ensure participation in all key Army decision councils.[34] Because the Air Force routinely uses RC units to support operational missions, the equipment needs of RC force elements are much more likely to be included in the planning and programming at the MAJCOMs.

As previously noted, the data on reserve equipping reported to OSD cannot be correlated directly with the readiness of RC units. Part of the problem is that each service focuses its reported data on the overall status of combat-essential items without regard to unit status. Each also utilizes its reserves in different ways, and each service follows a different path to funding recapitalization of existing stocks. Because the Navy decided that necessary modernization could only occur if the current force structure was reduced, the reserve force will receive newer frigates, through redistribution, much more quickly than had previously been planned. On the other hand, current Army decisions that emphasize retaining the post–Cold War force structure, with respective end strengths of 495,000 AC and 575,000 RC, for the future will result in less modern equipment being available for both redistribution and resources of new procurement of equipment for its RCs.

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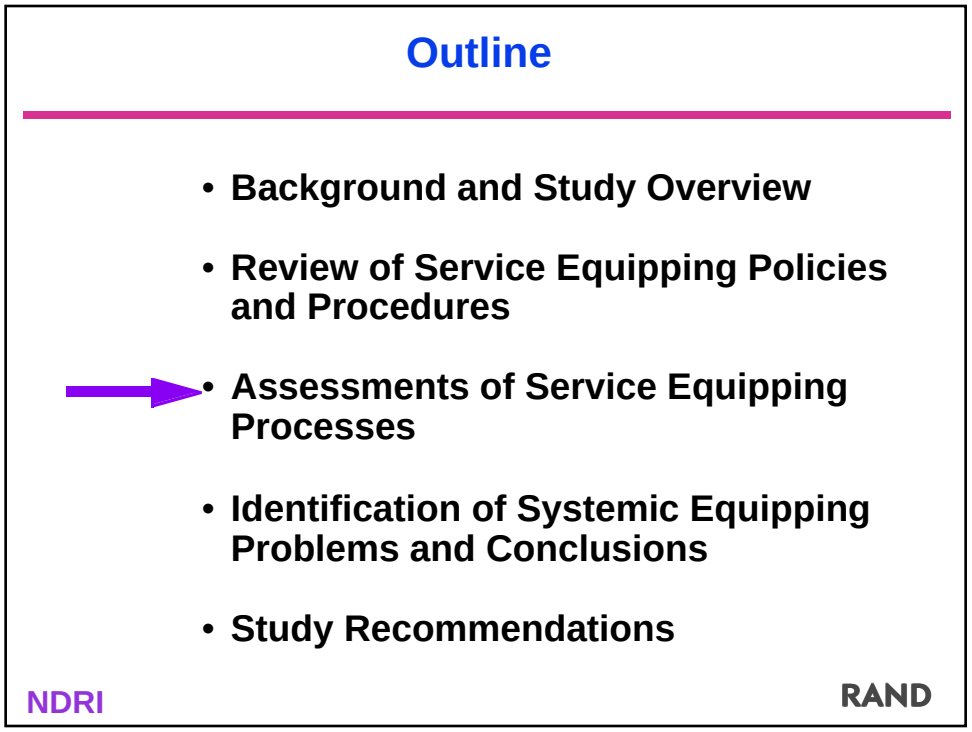
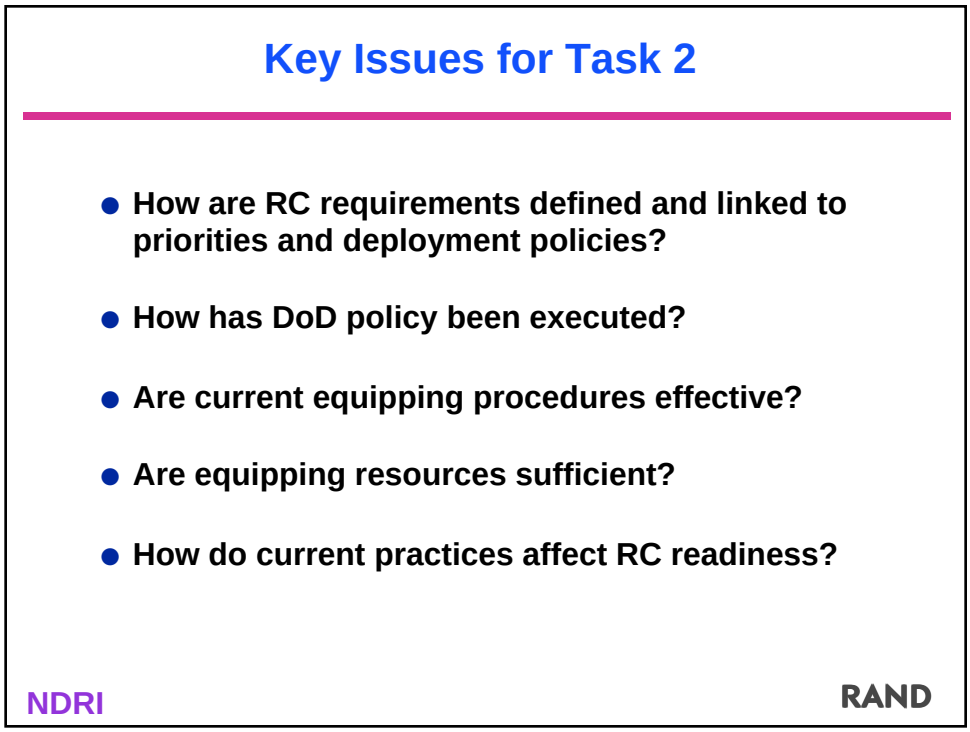
[34]During the period of research for this study, the Army implemented a new organization and process in 1996 for integrating requirements and allocating resources in its PPBS process. The new structure organizes the programming process into six panels and has the RCs integrated within each of these functions. Subsequent assessments of the operation of this process suggests a major improvement in increasing visibility for requirements and allocation of resources, including support for RC equipping needs.

SECTION 3. ASSESSMENTS OF SERVICE EQUIPPING PROCESSES



Our primary objective in our follow-on efforts was to develop an in-depth understanding to assess the effectiveness of service equipping processes as they affect the RCs. In this section, we discuss the method and findings of our Task 2 research and analysis, which developed from a "bottom-up" approach using multiple case studies as the basis for assessment.



KEY ISSUES FOR TASK 2

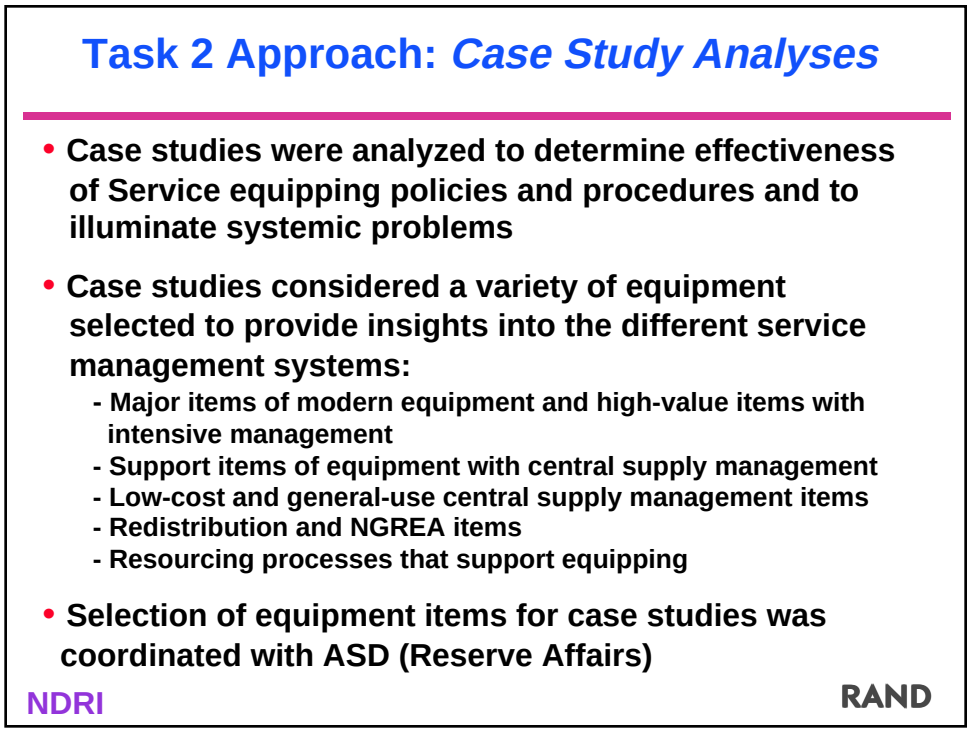
Based upon our Task 1 policy research, we identified several analytic issues as shown above as the focus of our follow-on efforts. These five questions, the focus of Task 2, address aspects of effectiveness of service equipping processes.

The group of questions centers on knowledge of and insights into the following:

- How are the RCs affected by their respective service equipping processes?
  - —Replacement priorities
  - —Redistribution of in-service equipment
  - —Resourcing for acquisition of new equipment
  - —AC distribution of new procurement
  - —New procurement using NGREA
  - —In-service upgrade and modification programs

- How do the policies and procedures affect equipment pipelines and resources?
- How do current processes affect RC readiness?
- How might proposed changes in processes and procedures affect the future equipping of the RCs?

If these questions could be answered for each of the services, we concluded that they would answer the key issues identified for Task 2. The next section develops our findings responding to these issues.



CASE STUDY METHODOLOGY

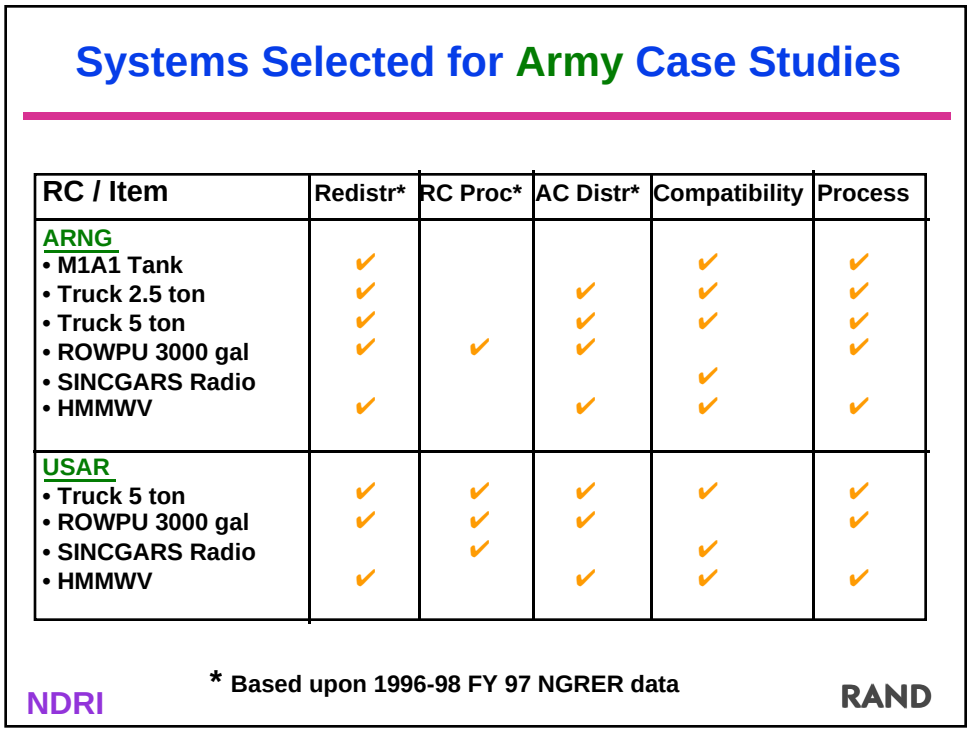
The case study case study methodology was used to obtain detailed insights into the effectiveness of the several service processes, for example PPBS, that affect the equipping readiness of the RCs. The key considerations for our case study effort are shown above. These considered only equipment systems that were being used to equip the respective service RCs, particularly items with existing shortages, and included both major high-cost end items that often required special service management procedures and lower-cost generic items of supporting equipment managed through routine equipping and logistics procedures.[35]

Specific equipment systems were jointly selected by the study team and OASD for Reserve Affairs to provide insights into the full spectrum of sources for RC equipment, i.e., distribution from service procurement, NGREA procurement, and redistribution; to provide insights into equipment, system, and Total Force compatibility; and to obtain insights

[35]The principal basis for information used to select equipment for case studies was the 1996–1998 year columns of the FY97 NGRER data for each RC.

into the several supporting systems, including requirements, readiness, logistics, and resourcing processes. The number of systems varied by service and RC, but where possible, common items of equipment were selected to obtain either cross-component insights, e.g., both Army Reserve and Army National Guard, or cross-service insights, e.g., Army and Marine.

The case studies provided a broad basis for understanding how to assess RC equipment process issues. However, because of service cultural differences, the approach had to be tailored to each service to capture the appropriate insights. Within this report, we will select appropriate highlights from our case studies to illuminate the status, issues, and insights identified from our service research. We have provided more detailed and comprehensive assessments on each selected case study equipment item to the OASD for Reserve Affairs during the course of this study. Our purpose here is to report only the key insights and is not to record the detailed case study research on each system.



Army RC Systems

Army systems were selected from the some 370 Army National Guard and some 330 Army Reserve items of equipment reported as combat-essential items in the NGRER for FY97 (DoD, 1996a, pp. 3-24 to 3-69).

The systems initially selected for case study analyses within the Army RCs are shown in the left-hand column of the chart. As noted earlier, items common to both the Army National Guard and Army Reserve were selected where possible and account for the preponderance of equipment on this case study list.[36] The check marks in the other columns of the figure indicate the equipment sources, compatibility, and processes for which insights were anticipated. For example, in the Army National Guard, the M1A1 Tank was being received from redistribution (Redistr) but no other sources (i.e., RC Proc = NGREA procurement source, and AC Distr = distribution from AC new procurement). This offered the potential for some insights into aspects of either force or system

[36]Comparison of Service charts illustrates another feature of commonality in the equipment selection with the Army, Navy, and Marine RCs with medium trucks and SINCGARS radios.

compatibility and also had the potential to provide insights on Army resourcing, requirements, readiness, and logistics processes.[37]

The M1A1 Tank represents a major high-value combat system that is intensively managed within the operations and force development office of the Army staff. The medium truck systems in the two Army RCs provide insights into (1) this same intensively managed distribution system for new procurement under the Family of Medium Tactical Vehicles (FMTV) program, (2) the use of NGREA funds and other RC resources to upgrade and rehabilitate older medium trucks (both 2-1/2 and 5 ton models), and (3) the normal logistics and readiness processes of distributing displaced older-model medium trucks to fill existing RC shortages. The Single-Channel Ground and Airborne Radio System (SINCGARS) radio is representative in this time frame of the use of NGREA to procure new, modern systems for direct distribution to RC units. The Reverse Osmosis Water Purification Unit (ROWPU) typifies a CSS system common to both RCs that is procured with NGREA, distributed from active force procurement, and received through redistribution. Lastly, the High Mobility Multipurpose Wheeled Vehicle (HMMWV) represents a ubiquitous modern vehicle with significant shortages in the Army RCs that are being addressed through both distribution from AC new procurement and redistribution sources.

This set of selected equipment systems provides a broad basis for gaining important and necessary insights to understand the Army's RC equipping status, the related and supporting processes, and the potential for solutions and improvements in RC equipment readiness. During the course of our research, we did not limit our inquiry to considering only the selected items of equipment. Where appropriate, we examined other equipment to gather insights, but usually in less detail.

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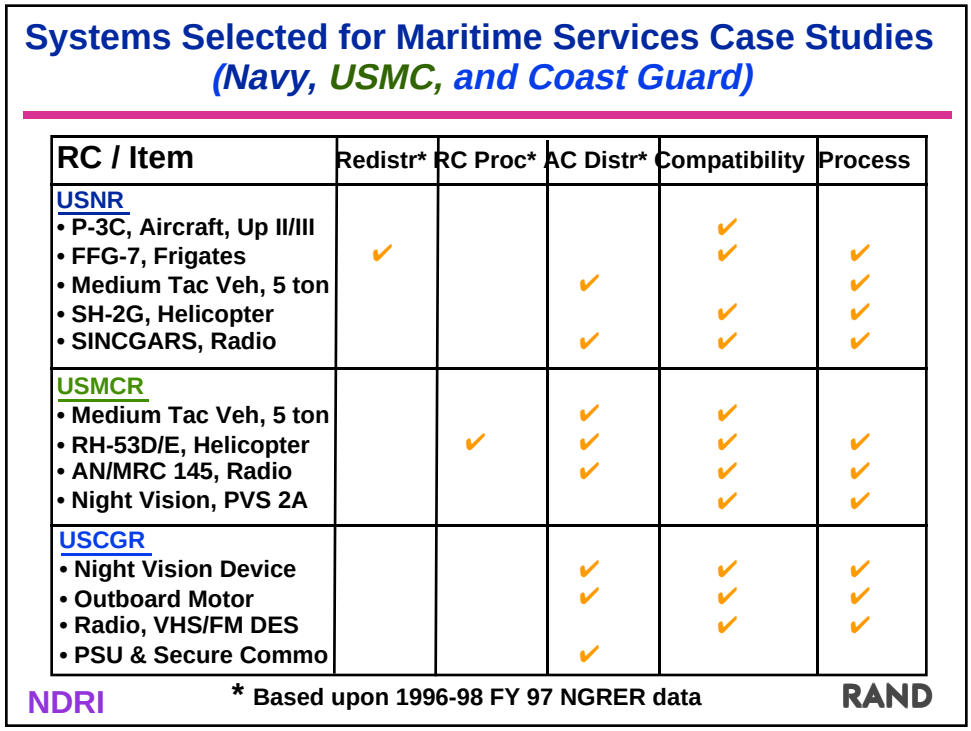
[37]There are many forms and modalities of compatibility. We considered (1) supportability, e.g., compatibility of logistics and maintenance support echelons for an item of equipment; (2) force rationality, e.g., compatibility of mobility and capability (i.e., night vision) of equipment within an employed force element; and (3) commonality, e.g., compatibility of fuels and munitions; and (4)other aspects which might influence resources within this broad terminology.



Naval Reserve Systems

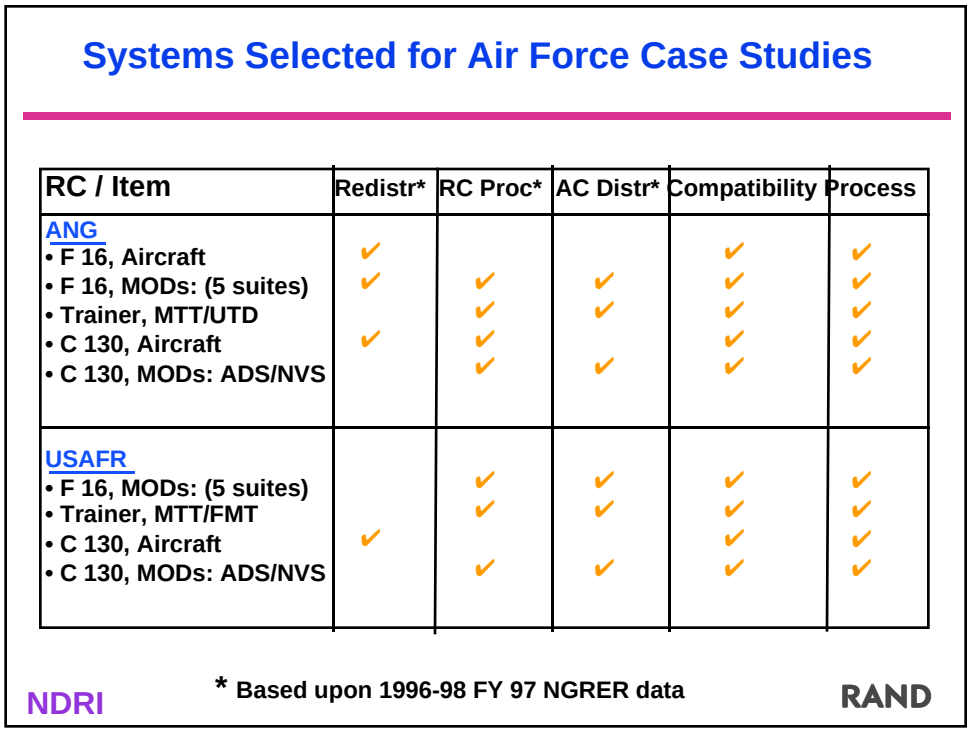
Although some 250 items are reported in the FY97 NGRER for the Naval Reserve (DoD, 1996a, pp. 5-18 to 5-35), we examined five key systems: maritime patrol aircraft (P-3C), guided missile frigates (FFG-7), medium tactical vehicles (MTV), antisubmarine warfare helicopters (SH-2G), and tactical radios (e.g., SINCGARS) as candidates for further analysis. They were chosen because they represented most of the major factors involved in equipping sources, compatibility, and processes and commonality with other services. Frigates are the only ships currently being moved into and out of the reserve force while similar ships remain in the active force. P-3s are representative of systems in which reserve units (squadrons) conduct operational deployments along with or in place of active operational units with the same basic equipment. The difference is in the level of modernization of the combat systems. MTVs are used by other services that may provide insight from different approaches to managing equipment. SH-2G helicopters are unique to the RCs and will replace SH-60B helicopters on FFGs that transfer into the reserve force. The SINCGARS radio is another example of a system used by more than one service.

Marine Corps Reserve Systems

Of some 170 items reported in the FY97 NGRER for the Marine Corps Reserve (DoD, 1996a, pp. 4-8 to 4-19), we examined four representative systems: medium tactical MTV, heavy lift helicopters (CH-53D/E), tactical radios (AN/MRC 145), and night vision devices (PVS 2A). MTVs were similar to vehicles being procured or remanufactured by the Army. CH-53Es were planned for procurement using directed NGREA funds. Tactical radios and night vision devices also applied to the Army RCs.

Coast Guard Reserve Systems

Although the Coast Guard Reserve only reports on some 40 items (DoD, 1996a, pp. 7-6 to 7-7), we chose to examine four systems: night vision devices, outboard motors, tactical radios, and PSU communications. The small size of Coast Guard units and relatively low unit cost of affected items led us to treat Coast Guard items as a group from the perspective of the PSUs. Further, the PSUs are the only Coast Guard units with a dedicated DoD support mission. The units are all in the Coast Guard Reserve, and other equipment items are not within the purview of OASD for Reserve Affairs.



Air Reserve Component Systems

Within the NGRER, the Air National Guard provides information on about 220 combat essential systems, and the Air Force Reserve reports on some 130 items of equipment (DoD, 1996a, pp. 6-22 to 6-45). Several of the reported items of combat-essential equipment, such as aircraft, are common to both elements of the ARC.

For the Air Force, a broad range of ANG and AFRES equipment was considered from which the final list shown was selected. The left-hand side of the chart indicates the Air Force systems selected for study. The Air Force equipment was selected for assessment because it was either in high demand in the ARC, was mission essential, or had some associated controversy over need or concern for compatibility.

Because Air Force resourcing processes are highly decentralized, it was important to capture insights and information from an array of sources. Interviews were conducted with members of the Air Staff, the Air Force Secretariat, and the MAJCOMs to understand the complexities of the various resourcing processes and ultimately how decisions were made. The Air National Guard Headquarters was visited and personnel from the ANG and AC involved in resource planning and programming were interviewed. Personnel were interviewed, and documentation was

reviewed from Air Combat Command (ACC) and Air Force Materiel Command (AFMC). Some of the documentation reviewed and assessed included material from the Air Staff Programs and Resources Directorate (AF/PR), Program Objective Memorandum (POM) paperwork, ARC internal documentation on resource requirements and outcomes, and ACC's Fighter Configuration Plan (FICOP). The documentation counterbalanced the qualitative data gathered during the interview process.

Quantitative and qualitative data enabled us to develop insights and posit some broader conclusions about how the ARC identifies its equipment requirements, how these requirements are adjudicated within the broader context of total Air Force requirements and resourcing, and finally, how well the ARC is equipped to perform its missions.

Importantly, some of the items selected provide insights into how the ANG and the AFRES negotiate agreements between themselves as a way to maximize common equipment requirements within the overall Air Force resource requirements process. The Multi-Task Trainers (MTTs): MTT/Unit Training Device (UTD) and MTT/Full Mission Trainer (FMT) are examples of this process. In the course of the case study research, additional equipment systems were selected that provided other important insights.[38]

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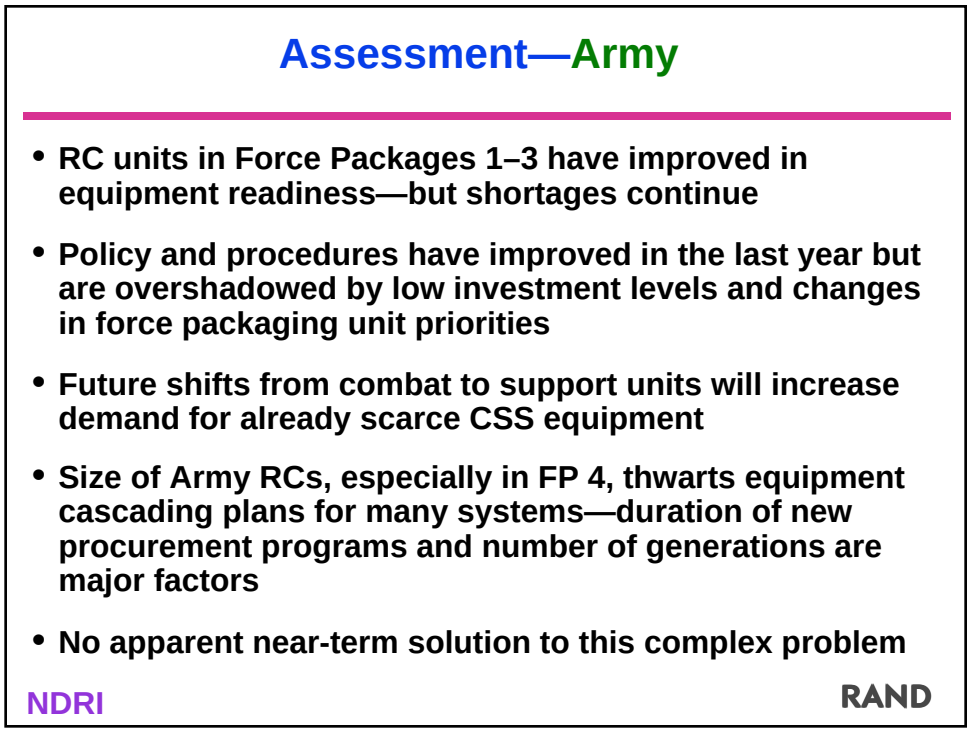
[38]For instance, the night vision, AN/PVS-7, was added because it revealed how some ANG and AFRES innovations were incorporated to improve the capabilities of the total Air Force. Reserve Component Equipment Management Briefing (Analysis) Air Guard and Reserve Brief, February 1996.



SERVICE EQUIPPING ASSESSMENTS

Assessment of Army Equipping Processes

During the course of our study, we observed a combination of Army plan, policy, and procedure changes affecting the RC equipping system that we assessed as improvements. These included a revision of the DAMPL, a revision of the Army's force packaging methodology with resultant changes in unit assignments to force packages and their inherent support packages, a draft revision to the AEP, and plans for the restructuring several Army National Guard combat units to become CSS units. These changes corrected several of the inconsistencies in unit priorities, realigned support units into the same force package as their associated combat units, and clarified or simplified the complex competing priority systems within the Army's four primary systems affecting equipping activities.[39]

[39]The ERC / DAMPL priority system for types of equipment and specific units tends to order both the readiness and logistics equipping systems. The force packaging system orders priorities within the force development and modernization equipping systems. When manifested in the PPBS or resource system, the latter tends to drive the acquisition

These improvements notwithstanding, Army resource investment in the procurement of equipment has been shrinking for more than five years, and the current program provides no near-term improvement (Army, 1995b, pp. 11–36). Lacking resources to procure new equipment directly affects the potential to address existing and projected shortages in RC equipment. Without new equipment fielding in high-priority AC and RC units, the availability of equipment for redistribution may be curtailed almost immediately. Yet, this is the principal source of Army RC equipment. Coupled with recent legislation that provides the President a "line-item veto" power, limited resources may eliminate NGREA as a source of RC equipment and constrain the Army's capability to address continuing RC equipment shortages effectively.

The future conversion of ARNG combat units to CSS units may also limit the Army's ability to equip the RCs. As we noted earlier in our Task 1 research, CSS equipment has been in short supply throughout the Army for a long time because there has been little recent investment in new CSS procurement. Adding more ARNG CSS units will increase the total Army requirements for many equipment systems already scarce, therefore exacerbating this situation over the longer term. Only a direct infusion of resources into the procurement of needed CSS equipment items can hope to provide a meaningful solution, albeit over the long term. The current requirements for the Army through 2003 as expressed in both requirements documents and resource documents (POM FY 98–03) show no panacea for solving overall RC equipment shortages and problems of old model systems and capabilities in the that period.[40]

The scope of this problem requires some discussion. The planned force structure for the Army from 1997 to 2003 divides the mix of forces between 45 percent AC and 55 percent RC, with equipment requirements varying in composition and mix within each component by type item. Not surprisingly, the preponderance of forecasted requirements for equipment items, many in short supply or with readiness problems, were for RC units.[41] The realignment of units within force packages did

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system priorities that also affect the modernization equipping system. The single policy that addresses all of these systems is the AEP.

[40]For example, planned procurement and fielding for the Army FMTV program will deliver just over half the requirement (about 46,800) within the program's first 20 years. The vehicle was designed for a 20-year useful life, which raised major doubts as to both the potential and feasibility to address RC shortages and older model vehicles within the existing resource and equipment priority systems over the current program years.

[41]For example, the September 1996 forecasted future requirements for Army medium tactical trucks totaled some 85,400 (all body types, 2-1/2 and 5 ton models) including some 5,000 for POMCUS and war reserves. Using 80,400 as the number of medium

improve the priority for some support units, but more RC units received a relative reduction in unit priority. The lack of programmed investment resources, the continued focus of investment on higher force-package priority units, and the very limited investment in CSS equipment do not provide a positive outlook for filling Army RC equipment shortages. Discussions with resource, modernization, and force development staff officers reinforced our conclusion that there is little or no potential to address major RC equipment shortages and readiness problems in the near term. The complexity of this issue coupled with its large scope make it a problem unique to the Army. Nonetheless, the overall direction being followed in Army resource allocation complies with existing DoD policy.

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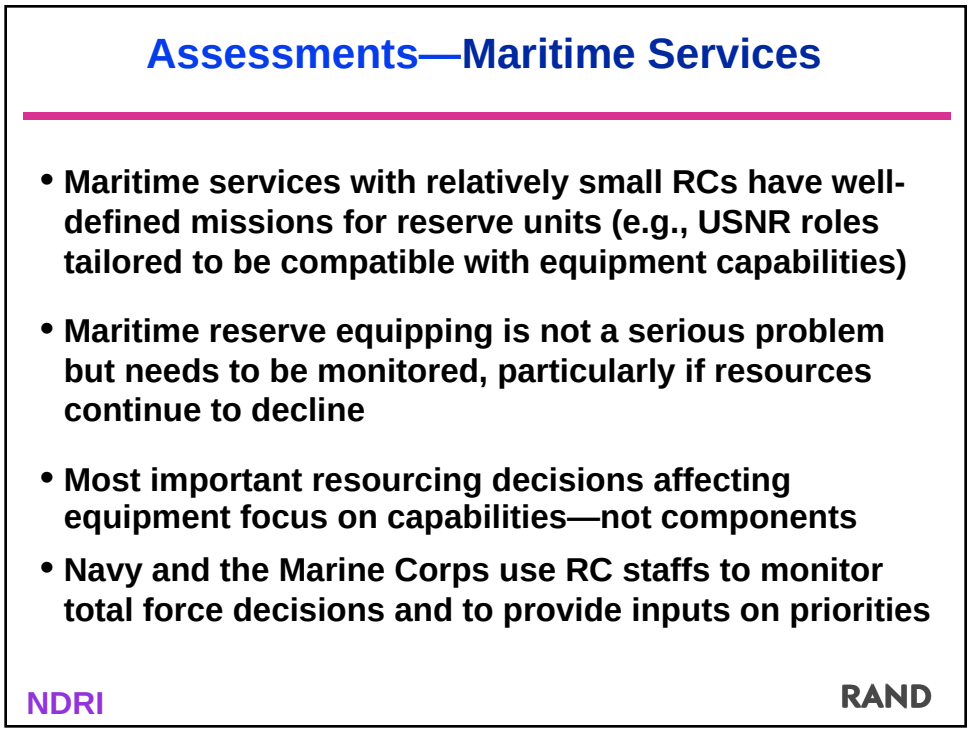
trucks required in Army units, the 42,400 medium trucks required in the USAR and ARNG amount to about 53 percent of the forecasted unit requirements for this equipment.



Assessment of Maritime Service Equipping Processes

Both the Navy and the Marine Corps have relatively small RCs. The Naval Reserve end strength for FY 97 was 95,900 (24 percent of active end strength). The Marine Corps Reserve end strength for FY 97 was 42,000 (24 percent of active end strength). These numbers are in stark contrast to the Army RCs, whose end strength is 581,700 (118 percent of active end strength). In addition, the Navy uses many selected reservists individually to augment active units. Naval Reserve ships and aircraft squadrons are assigned missions (e.g., drug interdiction, aggressor aircraft for training) for which their equipment is adequate if it is not identical to similar active fleet units. Marine Corps Reserve units are generally integrated into the flow of Marine forces into a combat theater at low levels of organization (usually company size). In fact, to assist integration, the Marine Corps has recently removed the "Reserve" designation from the names of these units, although they remain manned by reserve personnel.

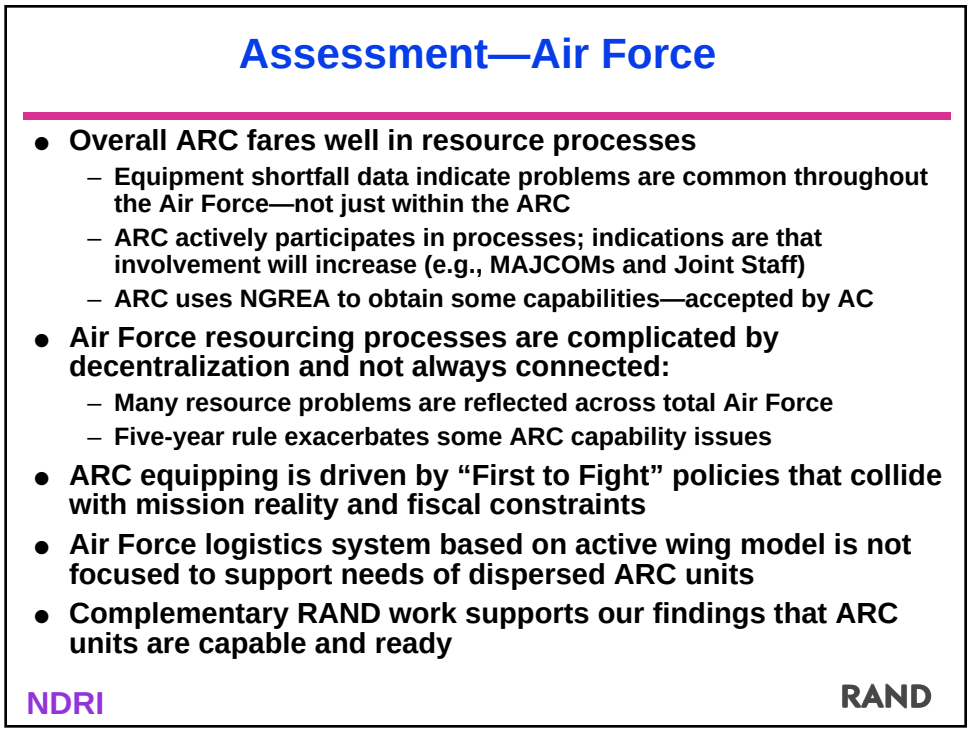
Because of their modes of operation, reserve equipping is not a serious problem for the DoN. Overall resource constraints mean that the Total Force will need to be used to perform the full spectrum of naval missions, and recapitalization will most likely result in modest redistribution

(particularly for FFGs). However, if more substantial budget reductions occur, the naval reserves may suffer disproportionate consequences to force structure, equipment status, or both to the detriment of Total Force policy objectives. OSD should carefully monitor future DoN POM outcomes for potential impacts on the reserves should major resource cuts be imposed.

This relatively positive assessment of reserve equipping does not mean that hard choices on procurement and modernization are not routine. It only means that the RCs do not appear to be underequipped compared with the active force; that is, the situation complies with the intent of DoD policy. Maritime patrol, antisubmarine warfare, surface escort, and heavy helicopter lift missions are changing in the post–Cold War world. Previously planned modernization has been deferred, and the ultimate application of these and other missions in future joint operations is evolving. When missions are transferred to the reserve, appropriately modernized equipment must also be provided.

The process for equipping reserves (and maintaining reserve equipment) is thoroughly integrated for both the Navy and the Marine Corps. POM development occurs in each headquarters with reserve personnel integrated with active duty officers. Both services have separate staffs for the directors of their RCs. These staffs monitor resourcing decisions affecting reserve equipment. The Chief of Naval Reserve and the Commander Marine Forces Reserve routinely report to Congress on the adequacy of resources for their forces.

The Coast Guard Reserve is, of course, unique among the maritime services since it is part of the Department of Transportation. Its resource planning and programming processes are not closely linked to DoD's requirements process, and most Coast Guard missions are not DoD missions. Nevertheless, the Coast Guard PSUs are necessary for many peacetime and wartime DoD missions. The Coast Guard maintains liaison with DoD and is represented on the Reserve Forces Policy Board and Equipping Working Group. To date, the Coast Guard has not received any directed funding from the NGREA legislation.



Assessment of Air Force Equipping Processes

As indicated in the discussion of Task 1, the Air Force has a more decentralized approach to equipping the ARC than do the other services. The Air Force's requirements process is based in the Modernization Planning Process (MPP),[42] which includes the MAPS. However, the individual MAJCOMs also play a role, with ancillary processes that support the MPP with their priorities; for example, ACC develops the FICOP. Our examination of the Air Force acquisition process focused on selected items that demonstrated how the ARC acquires new equipment or modifications as an extension of the resource process and the use of NGREA to obtain other needed capabilities. Furthermore, the way that the Air Force structures its logistics processes affects the distribution of spare parts and maintenance equipment. Thus, the process is more complex, and we therefore provide a more detailed explanation than we do for either the Army or the maritime services.

[42]The MPP is structured in a hierarchy that links strategy to mission areas to tasks and ultimately resources. Each MAJCOM develops its own internally identified mission areas that are derived from the missions of the combatant commanders.

This section describes how the process operates at both the Air Force and MAJCOM level and provides some illustrative examples from each to show how well the process operates. It also describes how the ARC deals with various constraints imposed on it. And it discusses the effect of the logistics organization on equipment distribution. It concludes with an assessment of how the parts of the resourcing process interconnect.

The judgment of how well the ARC fares in the equipment distribution process depends upon the source of the information. Examination of a broad range of data and interviews indicates that the ARC generally fares well in obtaining the essential equipment for performing its missions. However, some anecdotal evidence suggests that the Air Force's focus on generating new requirements and capabilities rather than on recapitalizing existing equipment works to the disadvantage of the ARC.

At the Air Force level, ARC equipment shortfalls can result because of the emphasis on acquiring new, more capable equipment and the desire to eliminate older equipment from the inventory. Generally, the ARC has older generations of equipment. The decisions are a result of resourcing processes that are not always synchronized and are primarily focused on generating and fulfilling requirements for new capabilities. For instance, all the MAJCOMs utilize the MPP, which identifies requirements based on a strategy-to-tasks assessment and establishes the modernization priorities within the command. However, the difficulty is that no single Air Force strategy-to-tasks framework exists that would enable the organization to look across all resources and set priorities on the totality of requirements. Rather, each command identifies its own requirements and its priorities based on its particular mission areas and modernization objectives.[43]

Two critical FY96 ARC requirements showed mixed results for the ARC in the requirements and resourcing process. The first was a full complement of mission capabilities in precision-guided munitions (PGMs). The AC has aircraft that can simultaneously identify a target with a laser beam and deliver the ordinance. The ARC has Maverick missiles and laser guided bombs that require another aircraft to identify the targets with a lasing device. Thus, when ARC aircraft are delivering PGMs, an aircraft with lasing capability also has to be dispatched. To support Joint Direct Attack Munitions (JDAM), Joint Stand Off Weapon (JSOW), and Wind Corrected

[43]Since this work was initiated, the Air Force has embarked on a process that will identify a single strategy-to-tasks framework for the entire Air Force. In addition, the strategy-to-tasks framework will not be based on core competencies and their derived tasks, but on mission areas, tasks and their associated concepts of operations. The Air Force leadership is attempting to define a single structure to have visibility across both operational and functional resources.

Munitions Dispenser (WCMD), the ARC needs autonomous lasing capabilities, including integrated Global Positioning System (GPS). To accomplish this with current aircraft, the ARC must have upgraded aircraft computer capabilities, modified aircraft and pylons, and new or modified weapons racks. This requirement was not approved for the ARC. Currently, HQ ACC has directed the research and testing of alternative technologies, modifications, and force applications in an attempt to reduce the cost of gaining a PGM capability throughout the fleet (ARC, 1996).

The second requirement priority in FY96 for the ARC was night mission capability, based on night vision goggles (NVGs) and modified cockpit and external aircraft lighting to improve night capabilities. Some aircraft gained this capability, and some did not. The Air Force funded the modification of the A-10 cockpit lighting across the fleet. Since 1992, new C-130Hs have been coming off the production line with appropriate NVG-compatible lighting. The ARC has made F-16 lighting modifications and goggles a priority for expenditure of FY96 NGREA dollars. The Air Force currently has ejection-compatible NVGs programmed for ARC block 30 F-16s in FY02/03. AATC is testing night vision capabilities and helmet mounted sights as a relatively inexpensive way to develop the capability.

The ARC negotiates its requirements within each mission area. Consequently, the ANG's and AFRES's ability to identify resource shortfalls and have them validated as requirements often depends on how well they participate in a particular MAJCOM's resourcing activities. The ANG's and AFRES's representation and performance are uneven among the MAJCOMs. For instance, we found the ANG at ACC well represented and actively participating in the resource processes. The AFRES, however, was not as well represented and on occasion relies on the ANG at ACC to represent its requirements and to argue for their validation through the resourcing process.[44]

Additional evidence suggests that the ARC recognizes the importance of participation in all phases of resourcing and is both training and placing people in critical slots within the MAJCOMs and on the Air Staff to ensure that its needs are identified and recognized.

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[44]ARC (1996); interviews, June 9, 1996; and Inside the Air Force, July 12, 1996. As noted earlier, subsequent information confirms that the individual components of the ARC are normally represented on MAJCOM staffs in general proportion to their unit representation in that MAJCOM and the relative importance of those assigned units to the individual component.

Critical to the resource deliberations is the five-year rule, which precludes modifications or upgrades on equipment designated to leave the inventory within five years.[45] Some ARC members indicated that the five-year rule was particularly difficult on the ARC, which receives most of the older equipment. The ARC contends that long DoD procurement cycles and tighter fiscal constraints often result in replacement equipment not being available according to schedule. The lack of funding for upgrades and modifications causes readiness problems and diminishes some of the ARC's mission contribution.

We assessed the FY97–98 FICOP to ascertain in one aircraft area, fighters, how the ARC fared in the MAJCOM resource debate.[46] The FICOP is ACC's planning document for determining how it will recapitalize its existing fighter fleet; it does not address new systems coming into the inventory. The FICOP establishes both which systems will be considered and their resourcing priority. The FICOP is iteratively developed in conjunction with the Air Force's MPP and MAP activities.

The assessment focused on the F-15 aircraft, which support the air superiority and precision employment missions. The Air Force has a total of 680 combat and training (CC and TF) coded F-15 authorizations. About 590 of these belong to the AC, and they are all the newer F-15 C/D/E models. Ninety of them are ANG authorizations, and they are the older F-15 A/B models. Early in ACC's deliberations, it applied the five year rule to F-15 A/Bs. Examining a number of upgrade requests, we found that funding modifications affected both the AC and the ANG. Some ongoing modifications or upgrade programs that included both A/B and C/D models were funded, depending on where the programs were in the development pipeline. Upgrades for F-15 A/Bs were either reduced or canceled (e.g., Operational Flight Plan Development, Developmental Test and Evaluation Flight Test, APG 63 VI Radar Reliance and Maintainability Upgrade, GPS Inertial Navigation System, etc.). These actions were based on ACC's decision to remove older equipment from the inventory. Several interviewees from the ARC agreed that it was critical to the overall Air Force and to the ARC in particular to retire older equipment; their

[45]The five-year rule, congressionally mandated and sometimes called the "sundown clause," establishes a baseline beyond which modification can no longer be made. Since it is triggered by the departure of the first aircraft in a given Mission Design Series (MDS), it can affect a significant portion of the ARC equipment inventory.

[46]Subsequent to our research, the FICOP development process has been folded into ACC's MPP. There is no longer a separate FICOP process or document.

concerns focused on how the ARC handles the time lags between removing older equipment and the arrival of replacement equipment.[47]

We then examined more broadly how the ARC responds to the constraints imposed on it by fiscal reductions, longer procurement cycles, and the application of the five-year rule. Typically, the ARC responds in two ways: (1) innovation and (2) increased cooperation between the ANG and AFRES.

The ANG's and AFRES's desire to maintain a high-level of mission readiness fosters innovation, particularly by using off-the-shelf equipment, which is modified to achieve needed operational capabilities. It is in this area that the ANG uses NGREA funds to acquire and modify equipment. Often the ideas are developed as experiments so that they can be widely tested and the results applied in a number of areas. Many of the ideas come from ARC personnel who apply their civilian experience to Air Force problems. Examples include self-defense pods, night vision capabilities, and cockpit video flight recording, some of which were subsequently applied across the Air Force (e.g., cockpit video and flight recording capabilities).

The ANG and AFRES also respond to increased fiscal constraints by cooperation: reducing multiple requirements, strengthening a single requirement by identifying identical needs, and focusing funding in areas judged to be critical to their operational readiness. The mutual cooperation within the ARC has manifested itself in MOUs in which the ANG or the AFRES is authorized to represent the total ARC requirement for a particular item in the resourcing process or that the ANG will negotiate in the resource process for the AFRES,[48] merging testing capabilities, such as found in Air National Guard and Air Force Reserve Test Center (AATC), and merging the trainer requirements for the F-16.

Although the Air Force recognizes and tacitly approves using off-the-shelf equipment to modify airplanes, the process is not without its critics. Some argue that the ARC's aircraft are not in standard configuration. The ARC counters by claiming it often could not perform its missions without off-the-shelf equipment and low-cost modifications, some of which are done

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[47]Interview ANG and AFRES, September 1996.

[48]The ANG is larger and usually has a larger number of staff billets in the various MAJCOMs or on the Air Staff. Because of this, the ANG is often more visible in the resourcing processes than the AFRES; therefore, MOUs are struck that merge requirements or ensure that the total ARC requirements are articulated. The agreements enable the ARC to discuss a requirement in its totality, thereby giving it more visibility and clout in the resource debates.

with NGREA funds. It further contends that, once the modifications are accepted within the Air Force, the aircraft are brought into configuration.[49]

Critics also argue that the ANG and AFRES are working outside of the formal system by generating their own requirements and acquisition processes. The ARC counters these arguments noting that all their activities are within the system; the various MAJCOMs encourage innovation and new concept development. The ARC's fiscal realities require it to explore alternative concepts and materiel solutions that are both cost and operationally effective. In addition, innovation and new concepts are so important to the ARC that the ANG hosts a yearly conference on ARC requirements and proposed solutions. The findings of the conference are shared with the Air Force leadership.[50]

The Air Force's logistics system can also affect the distribution of equipment to the ARC. To assess that effect, this analysis briefly examined two areas that are part of the logistics system and that affect the ARC: (1) spare parts and (2) test equipment. Requirements for spare parts are generated from a centralized system, which derives requirements from an entire wing's potential demand for spare parts based on its mission requirements.[51] Air Force Materiel Command (AFMC) applies formulas that assess utilization rates for a spare part based on worldwide consumption rates; thus, the user does not "generate" the requirement for spares. This is done by a model that reflects an air wing's consumption rates based on predetermined mission requirements.

A hierarchical and dual budgeting process that allocates how much can be spent on each item further complicates the spare parts process. Item managers are responsible for higher management of an array of assets. O&M funding is used for purchasing consumable spares and one-time-use repairables, while procurement dollars are used for the initial buy of spare parts and test equipment. The current system makes it difficult to audit what is being spent and where.

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[49]The ARC also argues that modifications to aircraft are done all the time by the AC and that these arguments are not raised. They further contend that this is generally an accepted process, which often leads to innovation across the Air Force. Interviews, July 1996.

[50]The conference is held each fall at Air National Guard and Air Force Reserve Test Center (AATC).

[51]An active fighter wing consists notionally of three geographically collocated squadrons that can share common support equipment, whereas the ARC typically positions squadrons at geographically separate locations where no sharing of common equipment is possible.

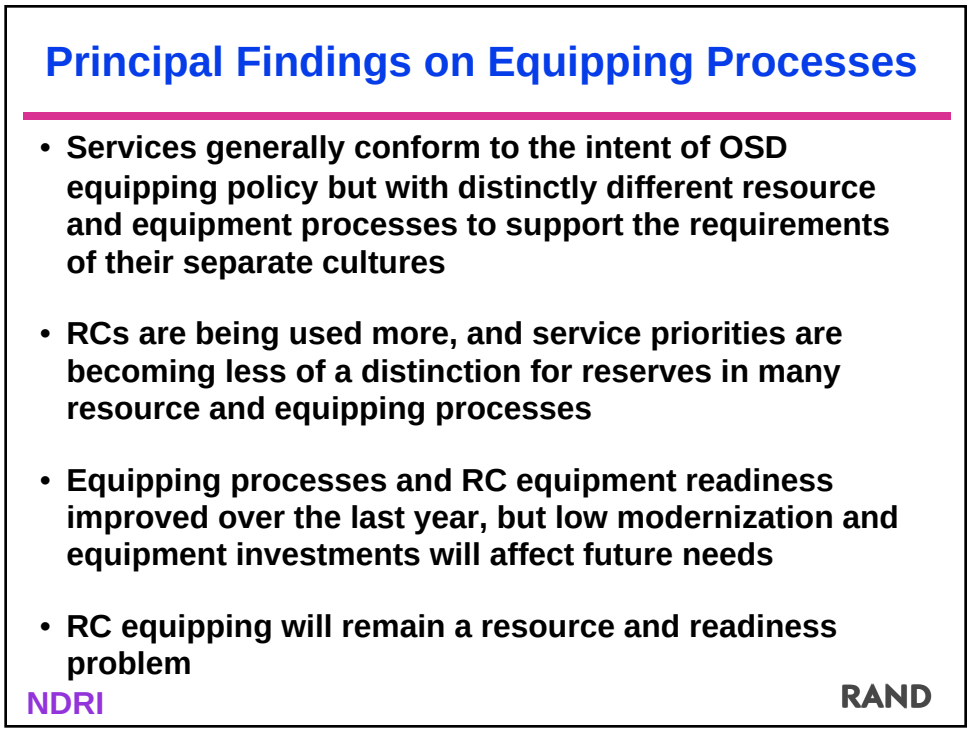
For the ARC, the situation is even more problematic because the requirements and allocation processes for spare parts and test equipment are based on the tactical air wing concept. This concept assumes aircraft are at a single location and calculates part allocation accordingly. But that allocation may be inadequate for the dispersed ARC aircraft. A second aspect of this problem is that parts that are deemed replaceable by the AC are often viewed by the ARC as having significant life left in them for further use with minor repair. Because of the costs associated with replacing a part, the ARC attempts to repair spare parts if 50 percent or more of their expected useful life remains with apparent cost savings.

Test equipment is also purchased based on tactical air wing requirements. This causes problems for the ARC because its units are normally dispersed across several locations, and it thus requires additional quantities. The ARC's requirements for test equipment are often not met.

Analysis indicated that shortages of spare parts and test equipment are not unique to the ARC; the experimental squadrons are experiencing similar problems. Most interviewees indicated that the problems were attributable to how the Air Force determined spare part and test equipment requirements, which is based on the generic demands of a tactical air wing. Proposed lean logistics initiatives are attempting to improve the link from user requirements to spare parts and test equipment buys.

This assessment also revealed that the resourcing processes are complicated and not always connected; however, none of the problems we identified were unique to the ARC. Some of the problems created by the disconnected requirements generation, programming, and acquisition processes were exacerbated in the case of the ARC because its organizational design is based on squadrons rather than air wings and the five-year rule. Lower organizational units and their geographic dispersal often results in higher demands for support equipment. Because the ARC does not receive the most modern aircraft, the five-year rule creates difficulties when promised aircraft or capabilities are not delivered on time. Despite these problems, Air Force readiness data indicate that overall readiness of essential equipment in ARC units is sufficient to meet their mission requirements.[52]

[52]Recent RAND work for the Air Force contains similar findings. The current work indicates that, despite equipping and training shortfalls, the ARC units are "virtually as capable as similar active units." See Naslund and Moore (1996).



SUMMARY OF PRINCIPAL FINDINGS

In summary, our service equipment case studies provided ample information and insights into the procedures and processes that affect RC equipping and a broader understanding of the underlying reasons for RC equipment shortages. Each service accommodates equipping within its separate culture and supports equipment requirements with processes that are often distinct to that service. We found that while the level of complexity, scope, and degree of equipping problems varied widely within the services, all were actively engaged in improving if not solving their existing and forecasted RC equipping problems; while all of the RCs have equipment problems of varying degrees, some find solutions more easily or reasonably than others.

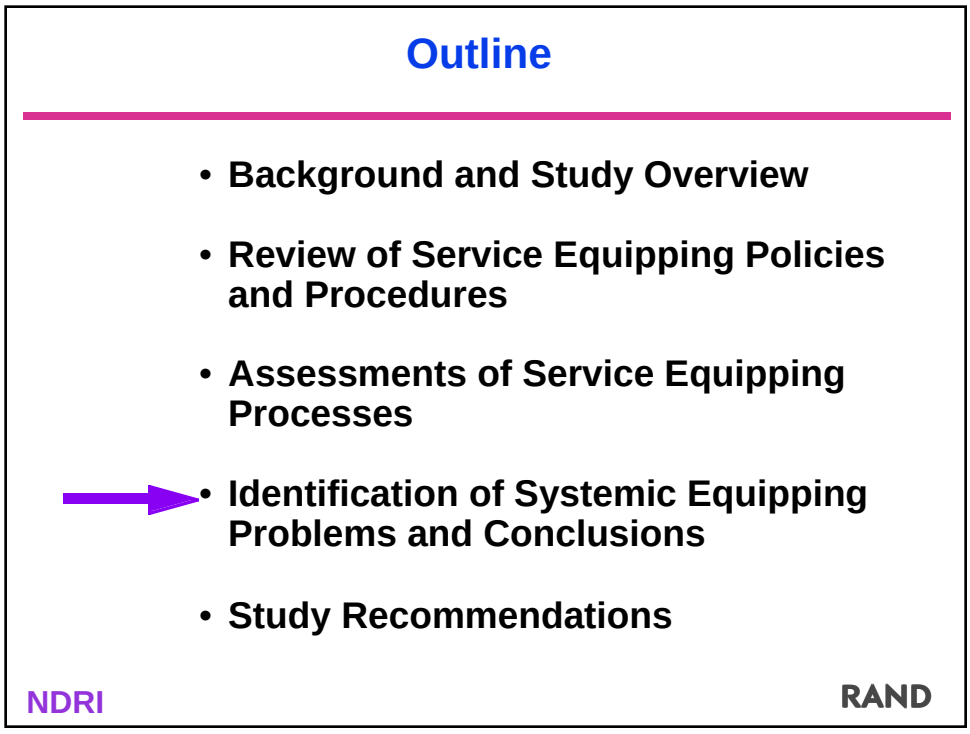
Our examination of the data and interviews with AC and RC staff members made it clear that the peacetime use and deployment of RC units and personnel have increased significantly in the post–Cold War period, particularly since the end of the Persian Gulf War. This increased use of RC units has sharpened the focus on RC equipment readiness status. The effect is improved consideration of RC equipment readiness and, often, less process distinction of RC resourcing within their parent services. Most service resourcing processes have improved over the past five years

in this regard, although this is not universal. While only the specifics of a few equipment items were examined to support this contention, the resourcing staffs a more unified and integrated attitude, which was thought to have had a positive impact on RC equipping.

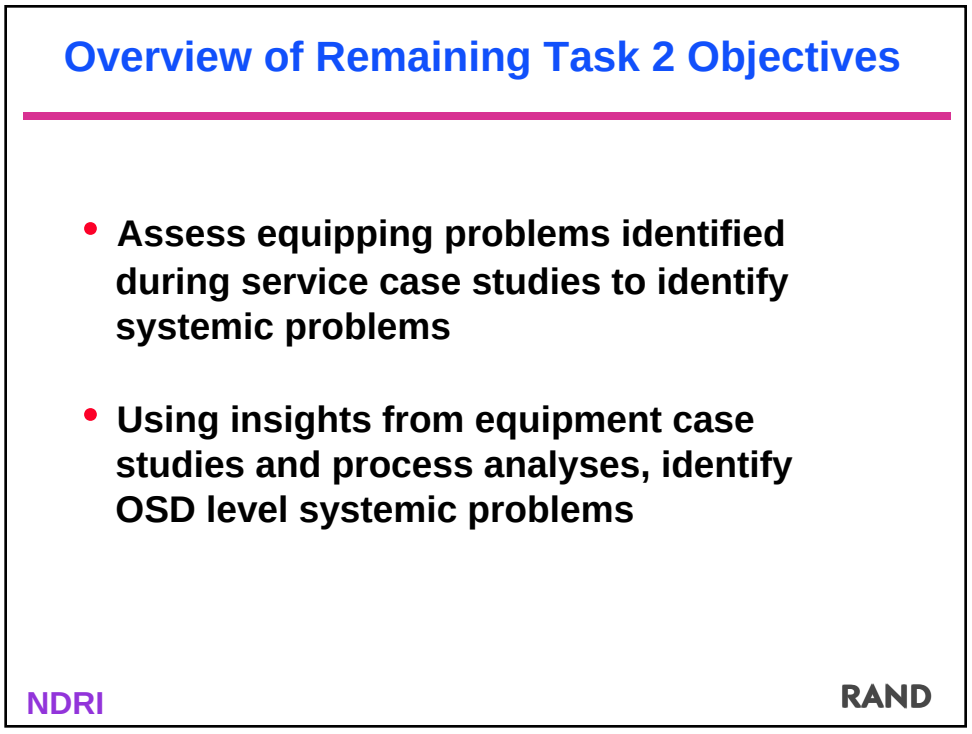
While these attitudes and some trends were positive, showing reduction or elimination of some RC equipment shortages, the level of investment in equipment procurement for all the services over the past few years has been less than desired and needed. Hence, there were examples where shortages persisted in each RC, with the Army having by far the most significant resource problem affecting its equipping requirements. While Navy, Marine, and Coast Guard equipment shortages are relatively minor for several reasons, including their relative scale, ARC equipment problems are less a matter of shortage (although a few storage problems remain) than a matter of compatible capabilities. The Army has a more complex problem of insufficient investment coupled with turbulent equipment requirements and the largest scope of RC equipment problems, which include incompatible capabilities, equipment age, and shortages, each having varying impacts on readiness.

Our overall assessment from an OSD perspective is that solutions to RC equipment readiness problems will remain elusive during the next five to seven years. This assessment is based upon the existing resource assumptions governing the current FYPD and the scale of problems that exist. Anticipated changes in the defense strategy are likely to complicate RC equipment requirements either through transformations of units to better match mission needs, such as the initiative to restructure some ARNG divisions from combat to CSS, or through increased use of RC units, which will likely raise the visibility of differences in either equipment capability or compatibility for units in the RCs relative to active force units. Further, the increasing demand for investment resources for recapitalization and major modernization priorities within all the services will tend to restrict large portions of their procurement to the active force and further constrain their ability to support the equipment needs of the RCs. We see no near-term solution to this RC equipping problem without a major increase in DoD resources or a major rebalancing of internal service resource priorities.

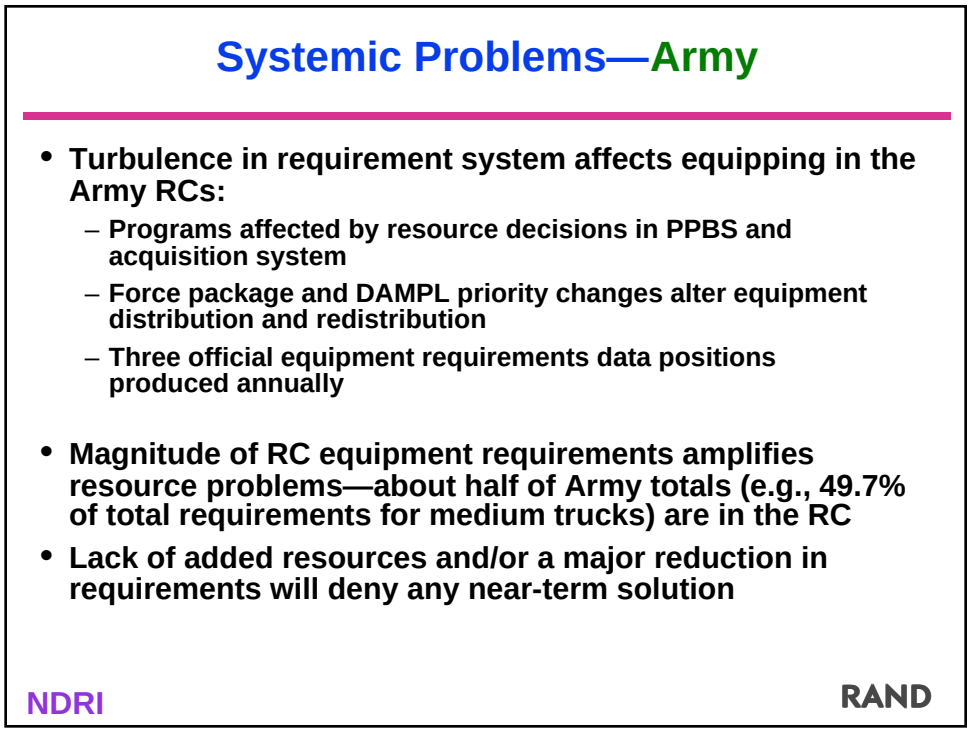
SECTION 4. ASSESSMENT OF SYSTEMIC SERVICE EQUIPPING PROBLEMS AND CONCLUSIONS



In this section, we discuss systemic service equipping problems that require a broad understanding of their respective cultural and resource contexts. Additionally, we examine RC equipping issues from the OSD perspective to develop insights across the services as a basis for considering potential policy and procedure changes at the department level.



The remainder of Task 2 activities addressed in this section are indicated on the chart. Our Task 3 recommendations follow in the last section of the document.



REVIEW OF SERVICE SYSTEMIC EQUIPPING ISSUES

Army Systemic Equipping Problems

In the course of our Army equipment case studies, we interviewed key staff managers to determine the relevance of findings from our small case study sample to the overall status of Army equipment in general and, more specifically, Army RC equipment and found broad consistency. Army investment is declining. For instance, comparison of Army future modernization requirements for medium trucks (i.e., FMTV program) showed a significant reduction from a long-term objective of over 102,000 in January 1993 down to 85,400 in September 1996, more than a 16 percent reduction during a period when the force structure was programmed to be relatively stable after 1997 (Army, 1993a, pp. F-24, F-38 to F-40, and DAMO-FDL, 1996, p. 11).

PPBS resource and acquisition decisions about the FMTV program delayed the production start for the program almost two years, stretched the acquisition to multiple multiyear purchases, and reduced the total number of purchases to about half of the total requirement within about a 20-year planned production, which incidentally equates closely to the

economic useful life (EUL) of the vehicle (Army, 1993a, pp. F-40, 9, 11, 24, 27–28).[53] The outcome is a plan that does not have sufficient resources to meet established FMTV program goals for recapitalization of the medium truck fleet that directly affects RC readiness for a long time. This ubiquitous equipment system, FMTV, exemplifies the scope and character of many of the Army's CSS equipment problems and generally indicates the effect of priorities on the RC's future equipping potential.

Further discussions with modernization staff officers indicated that requirements in total and, more specifically, among priority groups, such as the designated force packages, were altered in significant ways at least three times each year as the output of systemic requirements processes. These dynamic process outputs represent a combination of several Army change mechanisms: force design (internal makeup of units), force structure size and composition (numbers and types of units), force modernization (types and numbers of authorized equipment), doctrinal changes (e.g., allocation rules for ratios of support to combat units), strategy (e.g., numbers of units assigned POMCUS equipment), and DAMPL priority (relative order of units for resourcing and equipping). The effect on individual units is often turbulent, and in the case of some RC units, it may be chaotic, causing significant changes in equipment requirements, unit priorities, and schedules for receipt of equipment from a variety of sources, including both redistribution and new procurement.

Redistribution of equipment often causes turbulence. Our Abrams tank and SINCGARS radio case studies provided insights into the redistribution of multiple system models with varying capabilities. For instance, the Abrams tank was initially produced as the M1 system and distributed to active force units as a replacement for the M60A3 tank. Subsequently, M1IP, M1A1, M1A1-HA, M1A1-HA+, and M1A2 models of the Abrams tank system with varying capabilities were produced and fielded. M1 and M1IP systems were equipped with 105-mm guns, while all M1A–type systems fielded after 1985, regardless of model designation, were equipped with a 120-mm gun. Other models reflected differences in various capabilities due to changes in one or more components from computer data buses and sighting systems to drivetrain elements.

Concerns for force capability, compatibility, and supportability often influenced priorities for distribution and redistribution of these tanks and added turbulence to requirements and reduced readiness of units involved for several months. Priorities generally sent the most capable models to the highest priority group of units, e.g., Force Package 1. As

[53]The EUL for the FMTV has been determined to be 22 years.

improved Abrams tanks, say M1A2s, were fielded to these high-priority units, the next older generation, e.g., M1A1-HA+s and M1A1 HAs, shifted to the next higher priority group of units, e.g., Force Package 2. The arrival of M1A1-HA+ and M1A1-HA tanks in these units caused the subsequent displacement or "cascading" of M1A1 tanks, and so on. With each redistribution, concern for supportability and force compatibility became major factors, but the turbulence in the force continues. At this writing, estimates are that the total Army would be an "Abrams pure" tank force by May 1997. This means that some six different models of Abrams with varying capabilities and guns with two calibers will exist. This mixture affects maintenance and supply supportability by requiring different repair parts and ammunition. As M1 tanks are programmed for upgrade to the M1A2 models, additional redistribution will be required, continuing to produce unit turbulence as requirements change to match the improved capabilities. Similar information was found on the three different capability models of SINCGARS radios.[54]

As discussed earlier, the scope, size, and magnitude of equipment requirements within the RCs as a majority portion of total Army requirements is a primary contributor to our assessment that RC equipment readiness cannot be solved in the near term. RC equipment requirements for the total Army force structure programmed through 2003 account for more than half of the total unit requirements in the vast majority of systems (combat, CS, and CSS) and in many cases about half of the total equipment requirements, which includes unit, war reserve, operational project, and POMCUS needs. Further, as a result of a "tiered modernization" policy, the capabilities of the RC equipment are generally one or more generations behind those found in the active forces, and the equipment may be as much as 15–20 years older on average for similar items, such as radios and trucks, which exacerbates problems of unit readiness, force compatibility, and system supportability.

As we reported earlier in this briefing, the Army and their RCs are taking steps to address or improve many of these conditions and processes.[55]

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[54]The SINCGARS radio models include: (1) non-ICOM, radio without Integrated Communications security (COMSEC) capability; (2) ICOM, radio with Integrated COMSEC capability; and (3) ICOM-SIP, radio with integrated COMSEC and a Systems Improvement Program (SIP) that provides improved data capability, error correction, and automatic interface for common user systems and the Global Positioning System (GPS)

[55]For example, the documented requirements processes are deriving some stability from a decision to document requirements officially only once annually. This will reduce the turbulence experienced by units but will not necessarily reduce the magnitude of changes to be experienced during the annual changes. The Army also provides minimum

However, the sheer scope of the efforts and resources required to address the existing and forecasted equipping problems in the RCs is beyond current programs and resource levels. Hence, this is a long-term problem requiring both significant additional resources and some innovation to change the scope of the equipping problem by reducing requirements in the more distant future, clearly not possible in the near-term program years.

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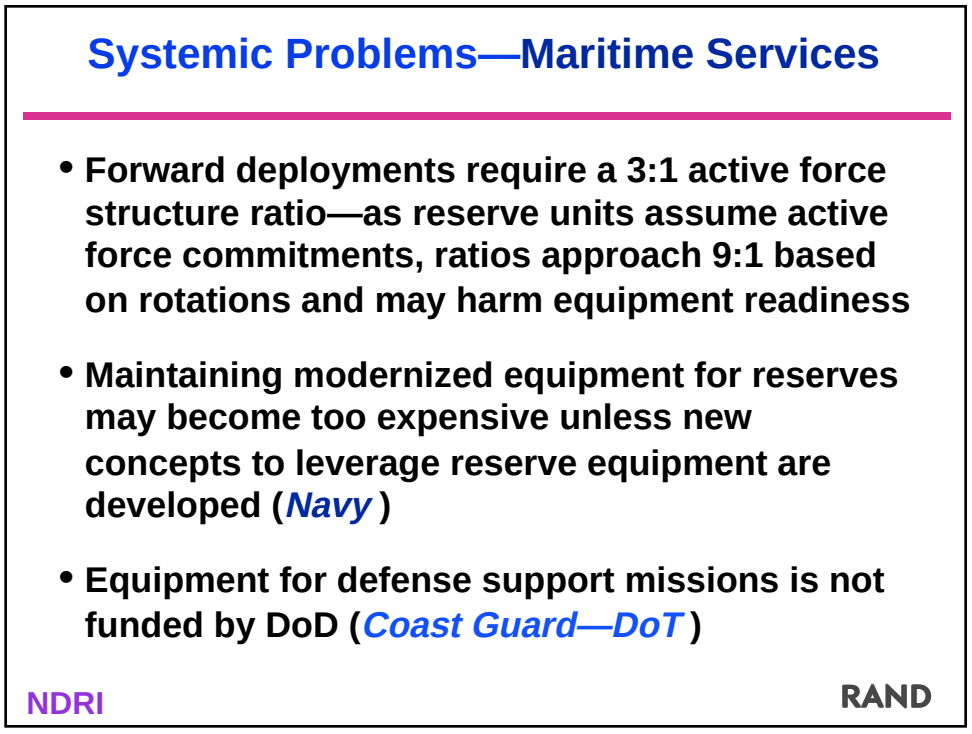
equipping levels for units within its equipping policy (i.e., the AEP). The goal is to ensure that all units are equipped to a C^3 equipment readiness level and, within its modernization process, that units receive Mission Essential Equipment for Training (MEET). Further, both Army RCs have initiatives to reduce and abate the effects of constrained equipment resources such as using some of their NGREA funds for Service Life Extension Programs (SLEPs) or capability upgrade programs. An example of these initiatives was found in medium trucks.



Maritime Services Systemic Equipping Problems

Our case study analysis included a review of P-3C update alternatives. From the review, it is clear that reserve units, if properly equipped, can perform operational missions alongside active forces. However, aviation units are more easily configurable for short deployments. The aggregate CINC requirement is 40 deployed maritime patrol aircraft (MPA) for peacetime presence missions. Reserve units provide 10 percent of requirements but comprise 40 percent of the force (12 active squadrons and 8 reserve squadrons). Normal operational tempo considerations for active forces result in a requirement for a 3:1 ratio of active units in the force to each forward deployed unit. Limitations on active-duty time for reservists and the need for volunteers to support peacetime deployments raise the ratio for reserve units considerably.[56]

[56]Active naval patrol squadrons have nine aircraft per squadron; reserve squadrons have eight. This results in 108 active aircraft to support 36 forward-deployed squadrons and 64 reserve aircraft to support four forward-deployed squadrons. Surface ship deployments around South America included three partial change-outs of reserve personnel during the cruise.

As newer systems move into reserve units (mine warfare ships, FFG, P-3C) or when there is procurement directly for the reserves (CH-53E), the cost of maintaining compatible configurations may become a problem. Our research found that only 21 of 64 reserve P-3Cs have Update III (the fleet standard electronics package), but the production line is currently closed. No updates are planned, and the Anti-Surface Warfare Improvement Program (AIP) is not programmed for reserve P-3s.[57] Some missions can be performed adequately with the older Update II configuration, but reserve load-sharing opportunities will be limited if modernization is not maintained across the Total Force. New concepts, such as using reserve crews on AC equipment to increase duty cycles or mixing high- and low-capability systems in both active and reserve units, may minimize the effects of limited funds for RC modernization. As previously noted, this does not appear to be a serious problem, but OSD should continue to monitor RC equipment maintenance and modernization for adverse trends.

The Coast Guard should receive special consideration since the port security mission is a DoD mission performed exclusively by reserve units. The Coast Guard is expanding the number of PSUs from three to six, but there is no money for the required new equipment. The original units were equipped by transferring equipment from other Coast Guard missions and procuring some new equipment, but some of the boats are now 13–14 years old, and equipment for the new units is not available.[58] Prior to Desert Storm, units were assembled on an ad-hoc basis, but, with their utility demonstrated in the Persian Gulf, they are now permanent units that fit into the deployment plans for operational missions of all of the warfighting CINCs. The total bill for equipping the PSUs is about $14.5M. With the focus on ensuring tactical success in joint operations, DoD should consider buying the necessary PSU equipment for the Coast Guard.

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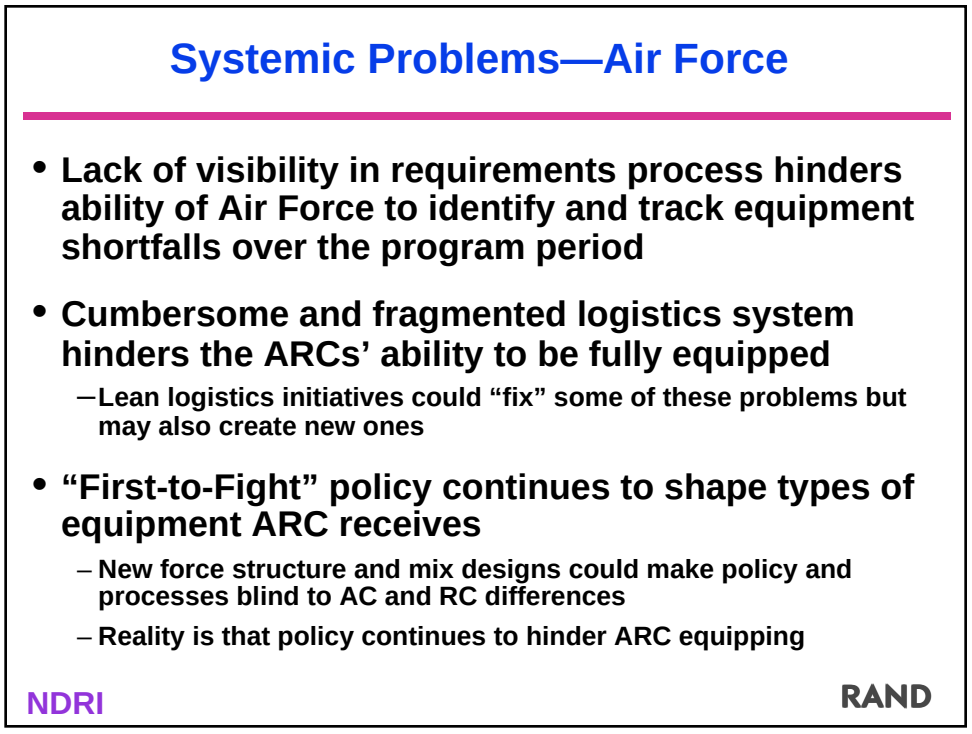
[57]Information received subsequent to our research shows that the Navy plans to use FY97 NGREA funds in the amount of $71.8 million to continue installation of Update III kits in 8–12 additional Naval Reserve P-3C aircraft. Update III kit production is expected to begin in FY98, and kit installation on aircraft and squadron transition is planned for FY99 through FY01.

[58]In 1987, the U.S. Navy provided $3 million and the U.S. Coast Guard provided $2.5 million to support procurement of required equipment for the PSU program. Subsequently, Congress appropriated some $2.3 million to replace lost and damaged PSU equipment resulting from use in Operation Uphold Democracy.



Air Force Systemic Equipping Problems

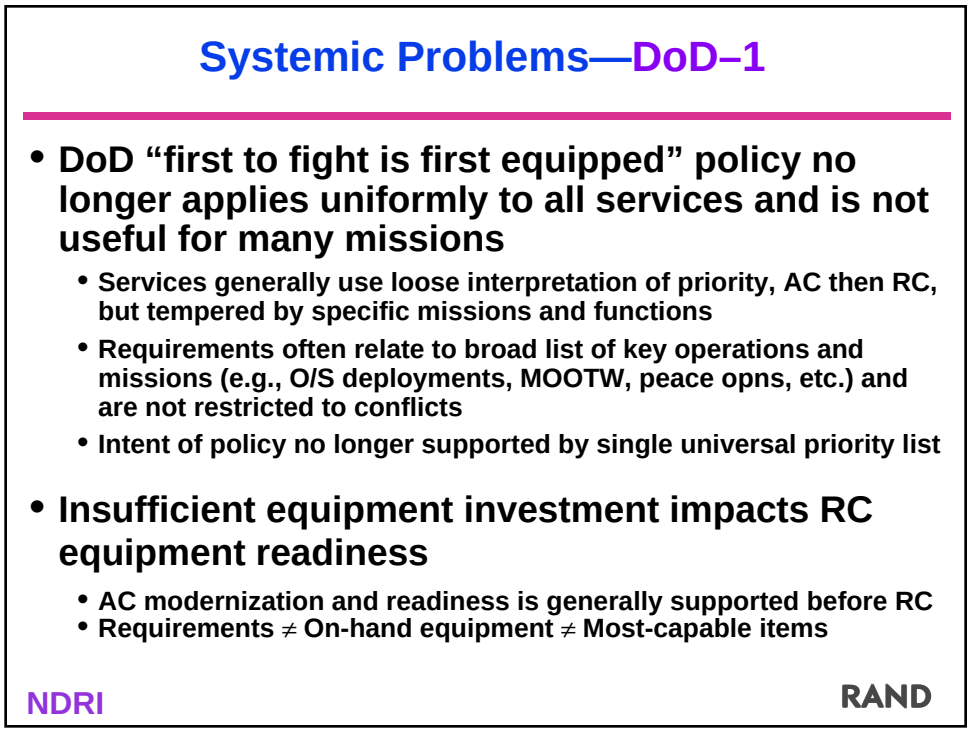
The key systemic problems identified for the Air Force confront the ARC in resourcing, planning processes, and receiving and maintaining their equipment. The highly decentralized requirements process, which results in each MAJCOM producing its own unique set of requirements based on the MPP system, only validates and tracks funded requirements. The process loses visibility into what in the long term might be critical demands for meeting the ARC's mission responsibilities. This problem is heightened by the Air Force's concentration on acquiring new weapon systems and getting old equipment out of the inventory. We are not arguing that older equipment should be retained in the inventory unnecessarily but rather that, given the declining defense spending and the stretching of procurement pipelines, the Air Force needs to assess realistically when and how its older equipment should be retired.

As noted earlier, ARC equipping is also affected by a cumbersome and fragmented logistics system designed around a centralized allocation process and the tactical air wing. Lean logistics initiatives could overcome some of these problems but could also create some new ones.

As with the Army and the Navy, the "first-to-fight" policy defines the type of missions the ARC undertakes and, therefore, shapes the types of

equipment and capabilities assigned to the ARC. Although the ARC generally fares well in the Air Force's resourcing process, the policy does limit the types and generations of equipment that it receives.

In response to declines in defense spending and the desire for modernization, the Air Force is examining an array of options that include force structure redesigns that increase ARC involvement in a number of mission areas and result in a redesign of the tactical air wing. Both of these initiatives could lead to a greater utilization of the ARC and increased equipment demands. OSD should monitor these organizational and mission changes to ensure that effects on RC equipping are assessed and appropriate levels of resources are planned.



DoD SYSTEMIC EQUIPPING PROBLEMS

Having reviewed the character and scope of individual service RC equipping programs, we now turn to the broader OSD perspective of the equipping situation. As noted earlier, the current OSD policy is focused on equipping units, including those in the RCs, to meet wartime deployment priorities. Often in the recent past, RC units, particularly in the Army, have been deployed for missions outside these parameters and have either lacked required equipment or have less-capable equipment, which was deemed unsuitable upon mobilization and had to be replaced prior to unit deployments. Our assessment is that the OSD equipping policy must support the strategy, which continues to evolve. As part of the current Quadrennial Defense Review (QDR), the military strategy is changing to encompass and support these missions other than war, such as small-scale contingencies (SSCs). OSD must ensure that the equipping policy supports the demands of this new strategy and does not focus purely on wartime needs.

Investment resources directly affect the equipping activities of all the forces. Currently, it is widely acknowledged that there are insufficient

investments within DoD to support required equipment recapitalization and modernization.[59] The amount of this resource requirement was determined without any direct consideration for solving RC equipping problems and focused primarily on future active force needs.[60] The inequities that exist between the AC and RCs in equipment requirements, availability, and capabilities are primarily a result of the lack of resource availability and the relatively low priorities supporting RC equipping that are derived from the military strategy.[61] The disparities in ARC aircraft capabilities compared with the active forces, major equipment shortages in the Army, and some incompatibilities throughout all the RCs are problems that can be solved with additional resources. The alternatives are to find more efficient ways either to reduce equipment requirements or to adapt RC units to be used only in limited operations and missions that are within the capabilities of their existing equipment. Both of these alternatives constrain the utility of the RCs. However, it appears unlikely that additional resources will be allocated to improve RC equipping, either from internal DoD resource shifts or increases in the DoD resource top line from Congress. The marginal improvements in resourcing that the services may make internally seem the only likely approach, and this may need OSD support to have any long-term positive effect.

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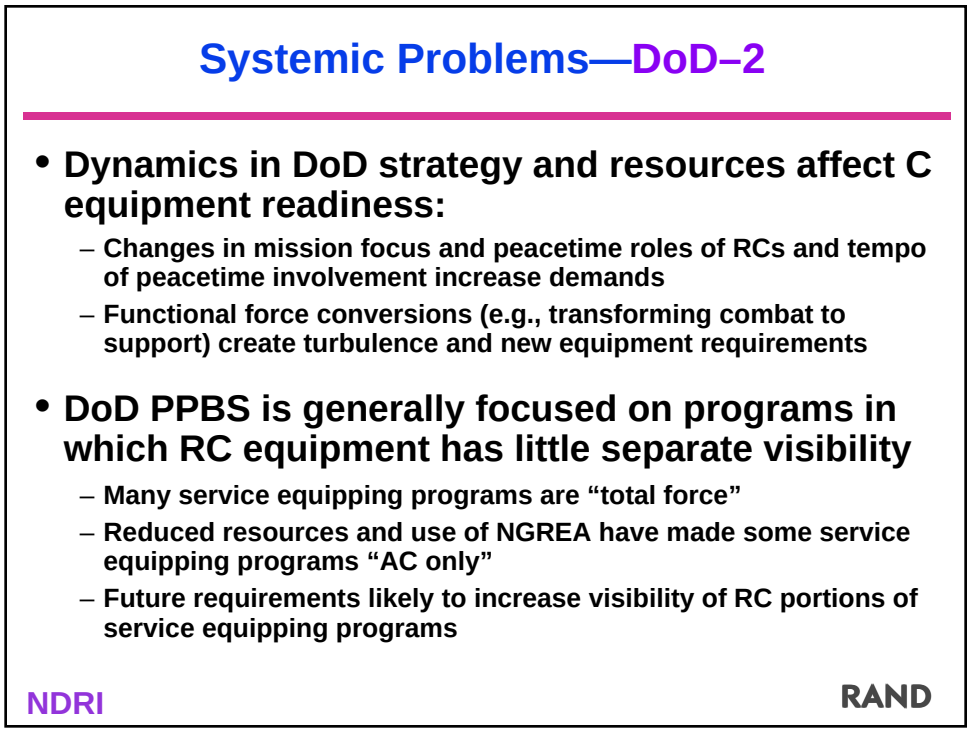
[59]Admiral William A. Owens, USN retired, former Vice Chairman of the Joint Chiefs of Staff, is credited with establishing the benchmark of $60 billion as the annual DoD investment to support needed recapitalization and modernization of service systems. By comparison, the FY98 DoD budget request to the Congress for annual investment is for only about $42.5 billion.

[60]Discussions with joint staff officers assigned to J-8 responsible for developing resource investment forecasts, September 1996.

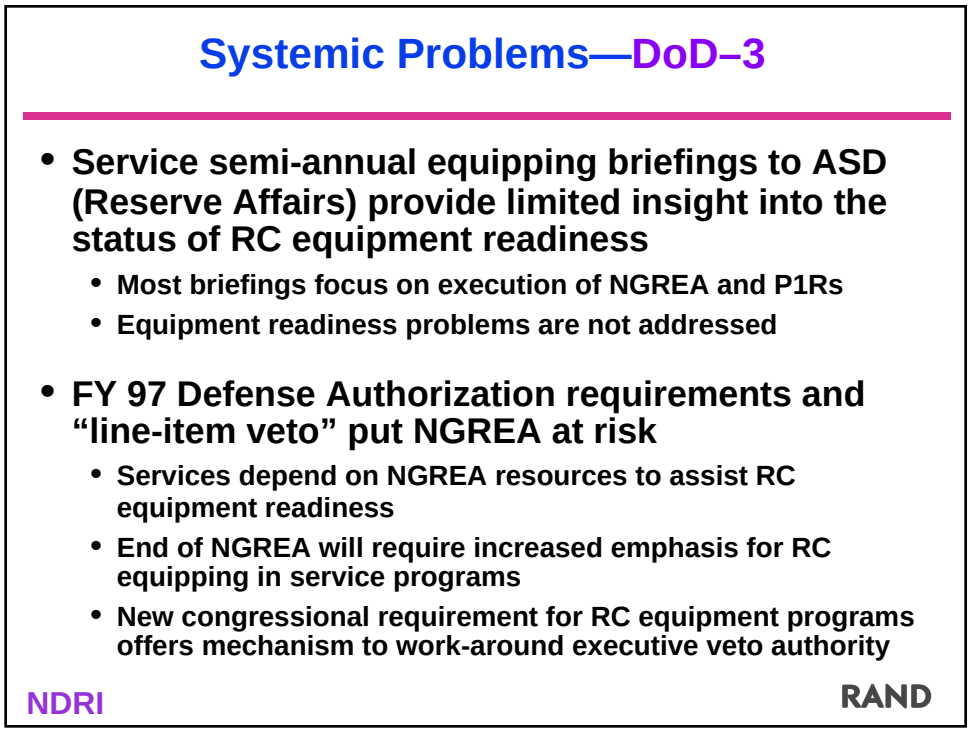
[61]It should also be noted that service force mix decisions that determine what elements are in the active forces and RCs are derived from the military strategy and also contribute to the relatively lower resource priorities accorded many RC units.



Turbulence in RC equipment requirements often results from changes in force structure that are precipitated by changes in the military strategy. These dynamics need to be fully understood and, where possible, planned as an integral part of the management and resource decisions to implement any new strategy. Our review of the study efforts leading to Les Aspin's Bottom-Up Review (BUR) defense strategy of 1993 and the recent QDR efforts shows that the resource effects of changing the strategy are generally developed only at the macro level, including major force structure elements, key weapon systems, and broad supporting programs. These macro efforts have not included the detailed studies that would provide resource implications of such second- or third-order reactions as those found in RC equipment. A key factor in dampening the turbulent nature of RC equipment requirements is to perform long-range planning with concomitant programming of the resources required to execute the plans.

While these PPBS activities are the responsibility of the respective services, OSD involvement would help to bring visibility to these efforts earlier in the process and should assist in reducing some of the turbulence observed in the past several years in RC equipment requirements. Information on RC equipment status and forecasts that the services periodically provide to OASD for Reserve Affairs is not correlated in OSD to monitor service PPBS actions. Hence, it is not surprising that solutions to RC equipping

are often not planned or that even identified resource requirements for RC equipment are generally not fully programmed. A more focused and disciplined approach may help to improve the future resource posture and reduce the dynamics often observed in RC equipping in the past.



Within the scope of our study, we reviewed the semiannual service equipping briefings provided to the ASD for Reserve Affairs to determine the nature of service RC equipping problems and proposed plans for solution. These briefings covered a period of about three years, which gave some basis for the analysis of content and trends. Surprisingly, each service brief has a different primary focus, and, over the period reviewed, changes in the character of their content were not symmetric across the services. Key elements in each briefing were the execution of P-1R and NGREA funds and the number of items of equipment reported. Each service included some common subject areas (P-1R service procurements for the RCs, NGREA procurements, and service equipment redistribution) but to different degrees. The Air Force briefings provided a status report focused on funding with a comparison of authorized funds versus obligations for mutually selected items of ARC equipment of interest to OSD but gave little or no information about equipment shortages or readiness problems. The Navy briefings also focused on execution but showed both quantities and values of equipment provided to the Naval Reserve compared with their plans and budgets for each equipping source, with only minor references to continuing equipment shortages. The USMC briefings were quite similar to the Navy briefings. The Army provided the most comprehensive briefings, with a full discussion of current equipping policy, priorities, readiness status of key RC force

elements and units, comparisons of planned and achieved equipping from each source, major factors affecting RC equipment status, and planned initiatives for improvement. The lack of common elements of information and differences in the scope within these briefings limits their utility.

Some recent improvements OASD for Reserve Affairs has requested included some reporting on service funding as it may affect the current readiness status of equipment compared to the NGRER data and forecasts the services provided earlier. Nevertheless, analysis of these additions showed that only the Army briefing information provided a useful basis for assessing the broader readiness effects of RC equipment shortages and the potential utility of near-term plans for solution.

Comparison of more-current service data with data compiled in the NGRER was a good initiative but must also be seen in the context of the utility of that report. The NGRER uses a uniform format for presenting the current and forecasted status of selected items of RC combat essential equipment. However, as already discussed with staff within OASD for Reserve Affairs, the services do not uniformly support NGRER data formats with forecast information, which degrades the report's utility for all but the current and budget years data comparison.[62] A further limitation of the NGRER is its lack of focus and absence of specific information about the most significant service equipment readiness problems presented in a useful way for either DoD or Congress to support resource decisions that improve RC equipping status.

The legislation providing the President the authority to use the line-item veto in future appropriations measures may affect an important resource supporting RC equipping activities. All of the services have become accustomed to having resources within the NGREA that address RC equipping needs and have over the past decade given much less support to these same needs in their cyclic PPBS deliberations and official budget requests. The service RCs have become reliant on the NGREA as a key resource to help attenuate their equipping readiness problems. The advent of the line-item veto may well jeopardize the future of NGREA, since this is not part of the official administration budget request and alters the resource priorities set within the executive branch.

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[62]Briefings the project team provided to OASD for Reserve Affairs showed several troublesome aspects of the NGRER. These included that, except for the Army, forecasts of equipment status for service-selected items beyond the current and budget years were not generally provided; some inaccuracies in reporting existed in each service in each report; and comparisons of equipping plans with subsequently reported execution for the same services and years showed wide and unexplained differences.

The FY97 Defense Authorization requires each service to include explicit coverage of RC equipment items requested in future budget submissions.[63] This law may provide a mechanism to nullify the new line-item veto as it may affect RC equipping appropriations (i.e., NGREA) by providing official budget lines for RC equipment in the DoD budget request that Congress can subsequently alter to desired levels of funding without much risk of a veto. This contention is based on the fact that existing lines in the executive branch budget suggest an initial level of commitment and priority to that equipment; the NGREA, on the other hand, has no official budget basis or support. Further, should Congress change the funding level of an existing RC equipment line, Presidential use of the line-item veto would eliminate all resources for that specific equipment for the respective RC in that budget. The result would be one of discounting the RC need in its entirety to maintain the exact level of requested funding. Changes to funding levels of internal lines within the budget request are a routine prerogative Congress exercises annually that would be unlikely to face executive challenge unless it forced either a major change in some aspect of the military strategy, such as the National Missile Defense (NMD) program, or an extraordinary shift in resources that jeopardized an executive level commitment, such as a balanced budget. Hence, this new law may provide a basis for Congress to continue its resource support for RC equipment in spite of the new executive authority.

This new law also has the effect of causing the DoD and services to give more active and detailed consideration throughout the PPBS process for RC equipping requirements. The effect may be to rebalance service resource priorities in a manner that is more beneficial to the RC for its equipping problems. At this writing, our views are speculative, since the QDR process has delayed the DoD planning and programming phases beyond the time of our study.

In summary, we conclude that OSD has the wherewithal, authority, responsibility, and resources, to take some actions that could assist the services in the near-term improvement of existing and forecasted RC equipping problems. In the next section, we recommend some of these improvements.

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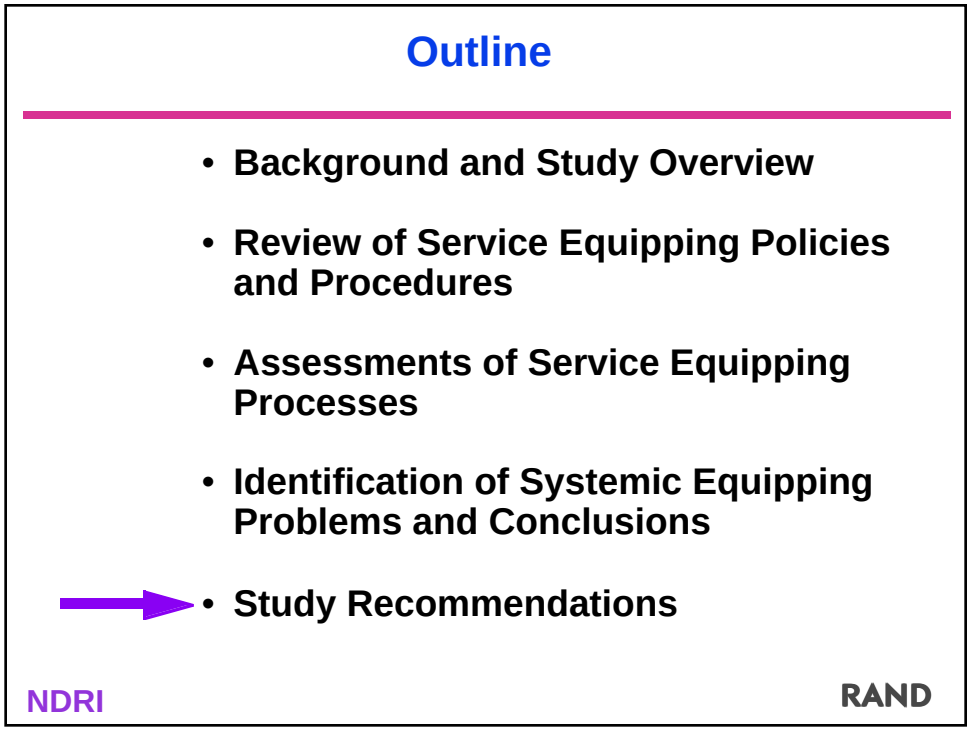
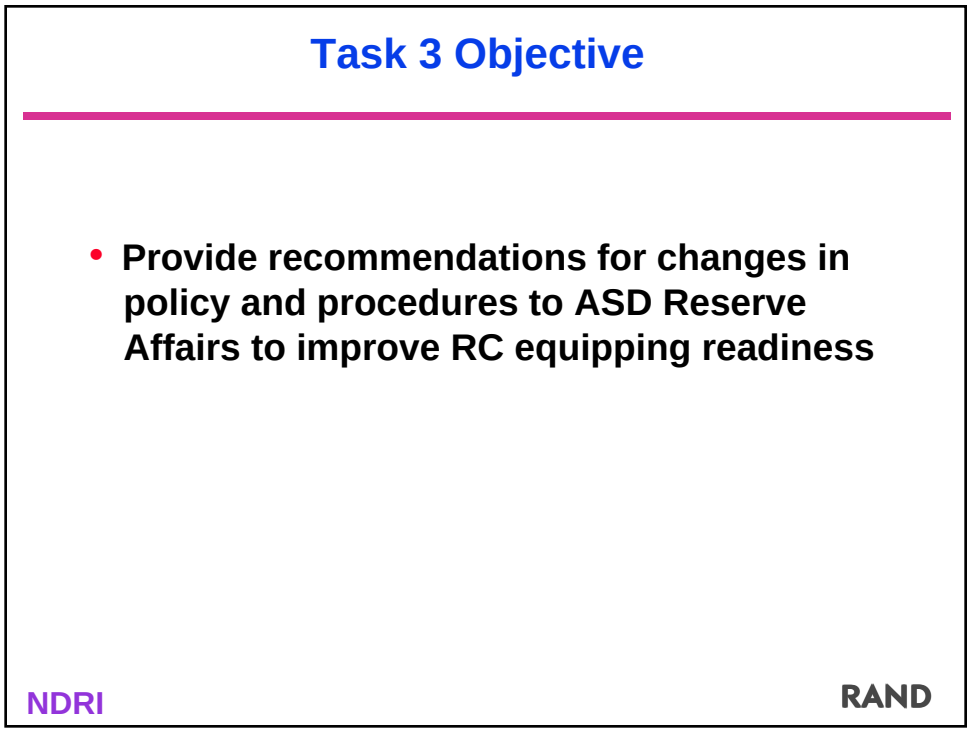
[63]The National Defense Authorization Act for Fiscal Year 1997 requires the Secretary of Defense to specify in each FYDP the estimated expenditures and proposed appropriations for the procurement of equipment for each of the six RCs in the DoD (U.S. Congress, 1996, Section 1055).

SECTION 5. STUDY RECOMMENDATIONS



In this section, we address recommendations for changes in policy and procedure at the OSD level that will assist improving RC equipment readiness.



Our Task 3 objective was to develop recommendations to improve RC equipping readiness. This section addresses the specific recommendations for changes in policy and procedure at the OSD level that have the potential to further that purpose. Our examination and analysis of service and OSD systemic problems was the foundation for our recommendations. However, we directed our recommendations to those policies and procedures that were within the assigned responsibilities of the ASD for Reserve Affairs.

Recommendations—1

- Revise existing DoD policy on RC equipping to recognize the broader spectrum of future missions and differing demands of service cultures
- Refocus ASD (Reserve Affairs) semiannual service briefings on key RC equipment readiness problems
- Strengthen ASD (Reserve Affairs) involvement in DoD PPBS process to support services' improvements in future RC equipping
- Proactively involve ASD (Reserve Affairs) with coordinating future service RC investment plans and programs

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We recommend that the DoD policy on RC equipping be revised to be more supportive of the evolving military strategy that is no longer solely focused on war or major theater wars (MTWs).[64] As discussed earlier, the DoD policy was revised in FY92 and was primarily focused on meeting wartime requirements (DoD,1992). The QDR has produced a strategy that encompasses both MTW and SSCs and requires a full spectrum of military capabilities to respond to both types of missions.[65] The key departure from the past strategy is that wartime requirements will not be the sole basis for establishing RC equipment requirements and priorities. Hence, we advocate, as do the majority of service staffs we interviewed, that the equipping policy reflect the changes in the strategy. This accommodation should be done only after decisions on the QDR have been taken, to ensure stability of the strategy.

Our review of semiannual service briefings on RC equipping found that few equipment readiness problems were identified or discussed. We

[64]MTW is the new terminology used in the QDR to describe the MRC, which was the previous terminology used in the BUR for describing the basis for both the strategic focus and required military capabilities.

[65]The Joint Staff's Joint Strategy Review (JSR) assessed the future strategic environment, defense missions, and military requirements upon which the QDR was subsequently founded.

recommend that OASD for Reserve Affairs and service staffs should shift their efforts from reporting funding execution for RC equipment to illuminating the equipment problems and shortages that affect RC readiness. We are not suggesting that the briefings become a forum for the discussion of service unit operational readiness status, which we believe is adequately addressed in other forums. Development of plans to address RC equipping problems needs a focus to assist setting priorities that affect resource allocation in the PPBS. We believe that realigned semiannual briefings can support this needed OSD activity. We also recommend that key equipping problems developed from these semiannual service briefings become one of the primary sources of topics, particularly broad systemic equipping issues, reviewed and discussed in the RC Equipping Working Group.[66]

OASD for Reserve Affairs is already involved in the PPBS process within OSD, but we are convinced that, with the implementation of some of our other recommendations, such as realigning the semiannual service briefings, the level of involvement can and should be strengthened. With the added responsibilities in OASD for Reserve Affairs within the PPBS process that have resulted from the requirements in the FY 1997 Defense Authorization, the office should develop the capabilities to provide the necessary review and oversight of service RC equipping within their POMs to support these new FYDP demands (U.S. Congress, 1996). This should include the necessary information to examine and determine the priority of RC equipment resource requirements for each service and the related impacts on readiness and, over time, an analysis capability to assess OSD priorities for these critical RC equipment items across the services.

We recommend that OASD for Reserve Affairs work closely with appropriate OSD offices and the services to coordinate their FYDP resource requirements and to ensure these obtain appropriate representation within OSD and by DoD to the Congress. These efforts can be supported within the existing DoD RC equipping framework using the RC Equipping Working Group; the semiannual service equipping briefings; and the information, data, and analysis provided to Congress in the NGRER. We recommend a holistic approach that employs each of these mechanisms to bring appropriate attention to RC equipping readiness and issues.

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[66]The DoD RC Equipping Working Group is a forum the ASD for Reserve Affairs initiated in 1995 to focus on management initiatives to address RC equipping issues and potential solutions. Membership includes representation from within OSD, Joint Staff, military departments, and each of the RCs, including the Coast Guard.

Recommendations—2

- **Assist the services by supporting resource needs within OSD that improve RC equipment readiness**
- **Focus the Equipping Working Group on specific policy, resource, and readiness issues**
- **Add a section to the NGRER that gives focus to a more selective set of equipment priorities linked to readiness—i.e., where is the most improvement for the next additional dollar?**
- **Request DoD funding for Coast Guard Defense-mission support equipment in PSUs**

NDRI RAND

We also recommend that the efforts of OASD for Reserve Affairs to support service RC equipping focus more intensely on equipment readiness. It is the responsibility of the services to equip the forces, but as these RC equipping issues obtain more visibility within the DoD PPBS, OASD for Reserve Affairs can and should be both the "honest broker" for assessing equipment needs and related priorities and a strong supporter for improvements to RC equipment readiness.

We have already mentioned the importance and potential use of the DoD RC Equipping Working Group as a forum to discuss and illuminate equipping issues and potential solutions. We recommend that this group also be used to discuss policy, programs, and readiness as they affect resources and capabilities. The almost two-year operation of the DoD RC Equipping Working Group plus the development of assessment tools and data within OASD for Reserve Affairs and the services have been useful initiatives that have contributed to improvements in RC equipping status and visibility. However, that same body has potential for broader use in assisting the evolution and development of DoD policy, identification of equipment problems and programs, support for resources, and development of solutions to equipment readiness issues.

Our review and analysis of the NGRER suggests that this report can also be used to represent and support service and DoD equipment resource

priorities to Congress. We recommend that a focused section be added to the NGRER that identifies the most critical RC equipment shortfalls and readiness problems and states the service and DoD priorities for providing resources for solution. We also suggest that those key RC equipment issues addressed in the related FYDP be given a supporting discussion within the NGRER. Implementation of these recommendations will provide the Congress knowledge of service and DoD budget and program actions and visibility of outstanding RC equipping problems whose solutions are not within the near-term resource capacity of the DoD.

Last, we have discussed earlier in this briefing the lack of mission-essential equipment for Coast Guard Reserve PSUs that uniquely support critical operations and plans of the unified CINCs. Recognizing that the only use of these units is in support of the DoD, we recommend that OSD develop a program mechanism to obtain funding for the PSU equipment within the DoD budget request. The funding requirements for this critical capability are relatively modest, at less than $15 million, compared to much larger annual service procurement budgets, and reliance on the DoT to obtain these resources may not result in either a timely solution or a responsive capability. Allocating resources to procure the PSU equipment will solve existing CINC operational shortfalls and benefit the overall status of RC equipment readiness.

These recommendations offer an opportunity to enhance the RC equipment readiness of the Armed Forces. Implementation of these recommendations appears to be completely within the prerogatives and authority of the Secretary of Defense and will support future improvements to this important readiness area.

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