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NDRI

National Defense Research Institute

*Long-Term Research
Plan and FY 95
Research Agenda*

April 1995

AR-5934-OSD

RAND

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Long-Term Research Plan and FY 95 Research Agenda

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AR-5934-OSD

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FOREWORD

The National Defense Research Institute (NDRI) was created in 1984 as the vehicle to provide DoD decisionmakers with RAND's analysis of policy choices. Little did anyone suspect then that these choices would in a few years amount to rethinking the very foundations of national security. Indeed, not since RAND made its first contributions following World War II has the intellectual challenge facing policymakers, and RAND, been so formidable and the need for fresh analysis and ideas so great.

In the early years of the Cold War, RAND helped policymakers fashion national strategies to respond to the Soviet threat and the advent of nuclear weapons. Those policies have now been overtaken by a worldwide political revolution. Yet certain parallels between these watershed periods in history deserve reflection. A half-century ago, a system of U.S.-led alliances was built to respond to the Soviet threat to three areas of vital importance, notably Central Europe, Northeast Asia, and the Middle East. A nuclear strategy was shaped, aimed at deterring attacks on the United States, extending a nuclear umbrella over its allies, and making nuclear war unthinkable.

Now the threat comes not from a powerful Kremlin but from turmoil and tyrants throughout the world—from ethnic conflict, regional power struggles, renegade states, and festering disputes. In place of the Soviet nuclear threat, there is the accelerating spread of missiles and weapons of mass destruction into the hands of the very regional bullies whose ambitions imperil U.S. interests, its friends, and international peace itself. Today's analog to the system of alliances to contain Soviet communism may be the creation of international peace enforcement capabilities—compatible with U.S. policies, grounded in international law and institutions, and soldiered from the widest possible community of nations. At the same time, it appears that the institutions constructed to manage and wage the Cold War should not be scrapped but rather rejuvenated to cope with new challenges. And even as aftershocks from the collapse of the Communist bloc destabilize the periphery of the former USSR from the Baltics to Central Asia to the Korean peninsula, the most crucial theaters for vital U.S. interests remain Europe, Southwest Asia, and East Asia. Finally, while the terms of engagement have been dramatically altered, the demands on American leadership and power are as great in the unipolar present as in the bipolar past.

The nation's security strategy is simultaneously being affected by major changes other than the fluid international environment. Technology, especially information technology, is revolutionizing the way wars are fought and presenting opportunities to preserve American military superiority at lower cost. It is not clear that the defense establishment is exploiting these technologies as quickly, strategically, and thoroughly as possible. Innovative practices can improve and streamline the means by which forces are supported, resources allocated and managed, new capabilities procured, and readiness enhanced. But technology is also creating vulnerabilities that we are only beginning to understand.

The relationship of the armed forces and defense industry to American society and industry as a whole will change fundamentally in the new era, as the Cold War rationale for a largely independent defense establishment gives way to a more interdependent approach. Opportunities abound to provide for national security in ways that both advance and benefit from other national pursuits in such fields as education, health care, industrial policy, and social policy, and in the use of reserves and the National Guard in circumstances other than war.

Current requirements for national security policy analysis demand excellence in a range of research areas, from international strategy to technology and acquisition to forces and resources. Understanding any one of these fields requires an understanding of all, for they are tightly linked. NDRI is equipped to perform these functions and stands ready to help its sponsors—the Office of the Secretary of Defense, the Joint Staff, the unified commands, and the defense agencies—meet the formidable challenges they face.

INTRODUCTION

The research plan of the National Defense Research Institute is a means for RAND and DoD to agree and document how this particular FFRDC (Federally Funded Research and Development Center) is to be used in the future. In the plan, NDRI hopes to capture the long-term research priorities DoD wishes to emphasize, recognizing that these priorities could change as events unfold. The plan also addresses the most pressing concerns of DoD policymakers. Setting research directions will help NDRI invest in capabilities for the future, while also fostering the kind of continuity expected of an FFRDC.

The document explicitly sets forth the FFRDC resources required to carry out the desired research, thus providing a baseline for stable annual funding and for staff planning. We solicit DoD's comments and concurrence on our long-term research strategy.

The *NDRI Long-Term Research Plan* has two parts: The first describes a long-term research strategy that is based on interactions with our DoD sponsors, our own assessment of major national security issues, and our ideas about how RAND's analytical capability can best serve our sponsors in the years to come. The second part describes the a research agenda for FY 1995 as of March 1995.

This research plan takes into account the adjustments that the Department of Defense has already made since the end of the Cold War. However, the plan does not assume that a steady state has been achieved or that current policies are immutable. Thus, it identifies research to be done within the current framework as well as research not confined by today's policies, as should be expected of an FFRDC that has both independence and a long-range perspective.

I. THE LONG-TERM RESEARCH STRATEGY

The Focus: Rethinking Key Policies at a Time of Change and Uncertainty

With the passing of the old era, RAND has made a renewed commitment to help rethink national and international security. Responsibility for adapting defense policy to dramatically different world conditions falls heavily on the Secretary of Defense, the Deputy Secretary, their chief lieutenants in OSD, the JCS and Joint Staff, the unified commands, and the defense agencies. This responsibility gives NDRI, as the RAND FFRDC that provides independent analysis to these central policymakers, a special charge and challenge. For this reason, NDRI should fix its attention on understanding and managing change and coping with uncertainty, if need be to the exclusion of other issues.

Change has many dimensions, but not all are equally important to DoD. This FFRDC should concentrate its efforts on three intersecting forces of change:

- **The revolution in world politics** and thus in the international environment for national interests and security.
- **Accelerating technological change**, which affects capabilities, threats, and the character of warfare.
- **The transformation of the U.S. military establishment**—its people, forces, and resources—within the broader post-Cold War American agenda.

RAND has a special capacity for analyzing the effects of these changes. Its core competencies lie in the ability to understand international conditions, assess the potential of key technologies, find opportunities to improve resource management, and relate national security to domestic priorities. In addition to the research thrusts within NDRI, RAND's strategic emphasis is on domestic policy, critical technologies, and Air Force and Army policies, all of which bear on the nexus of these three developments. In short, the task of analyzing the implications of these changes is great, but it plays to RAND's strengths and synergies, all of which are available through NDRI.

Understanding Our Sponsors' Needs

NDRI's research plan is the synthesis of an approach conceived by NDRI and the concrete needs expressed by our sponsors. Just as sponsors expect NDRI to maintain a coherent, long-range research perspective, we rely on interaction with sponsors to ensure that our work is relevant and helpful. This interaction is both formal and informal, and it occurs throughout the year. Ideally, during the summer intensive discussions between the FFRDC and sponsors will lead to decisions before the beginning of each fiscal year on an annual research program—subject to appropriations and to change, of course.

In addition to determining specific needs from all sponsors, NDRI relies on DoD's senior management to confirm overall research priorities, as well as the level and distribution of research capabilities it expects the FFRDC to maintain. In sum, the plan invites overall DoD guidance to NDRI.

Major Areas of Research

The three main axes of change—international policy, technology, and defense resources—define the three major areas of NDRI's research. Each area will be managed by a separate research center, responsible to and guided by a family of DoD sponsors within the framework of DoD's overall governance of NDRI. The research emphases within each center correspond closely to the responsibilities of the three undersecretaries in OSD, as well as to those of the Joint Staff, defense agencies, and other sponsors with related concerns.

The following charts provide an overview of the sponsors each center will serve, the policy issue areas on which each center proposes to concentrate, and the capability—expressed by a number of “members of the technical staff” (MTS)—needed to satisfy expected research needs in these issue areas. The specific policy issue areas for each center reflect a synthesis of sponsor demand (as understood by NDRI) and NDRI's own view of where independent, disciplined policy analysis is important. Estimates of resource requirements (by issue area) reflect the need to maintain a “critical mass” of expertise, develop in-depth understanding of all important aspects of each area, meet surges in demand, and provide quick-response support.

We encourage sponsors to focus critically on these charts. To ensure to the greatest degree possible the responsiveness of this FFRDC, the dialogue between NDRI and sponsors that will follow submission of this plan should address both long-term and annual research agendas.

INTERNATIONAL SECURITY AND DEFENSE POLICY CENTER

Overview	Primary Sponsors	Policy Issue Areas	MTS
<p>The new international security policy agenda is dominated by the need to manage change in three key theaters—Europe, Southwest Asia, and East Asia—with the transformation of the former Soviet Union critical in its own right and in its potential effects on the three crucial theaters. The policy problems in these regions range from security threats possibly requiring armed response (MRCs, LRCs) to instabilities requiring politico-economic strategies. The current two-MRC U.S. strategy requires both continued refinement and critical review in the light of fluid international conditions.</p>	<p>OUSD J-5/J-7 NA CINCs</p>	<p>Global security environment Long-term economic, technical, and military trends Revolution in military affairs</p>	<p>3-5 1-2 2-3</p>
<p>The two most challenging of the emerging requirements, though not necessarily the most costly, are responding to the spreading threat of weapons of mass destruction (counterproliferation) and creating better multilateral peacekeeping capabilities, consistent with U.S. interests.</p>		<p>Regional security policies Europe Former Soviet Union East Asia (excluding China) China Southwest Asia and other regions Multilateral security Peace operations Coalitions and burden-sharing Weapons of mass destruction Counterproliferation (including BMD) Strategic nuclear Strategy, doctrine, and plans Overall strategy and requirements MRCs LRCs and other operations</p>	<p>14-22 3-5 4-6 2-3 2-3 3-5 4-6 2-3 2-3 6-9 5-7 1-2 6-9 2-3 2-3 2-3</p>
<p>In all aspects of U.S. international security policy, there is a growing need for a more equitable sharing of burdens by those U.S. partners who share our interests and have ample economic capacity.</p>		<p>International economics Economic policies and instruments Arms and technology policy</p>	<p>2-4 1-2 1-2 35-55</p>

ACQUISITION AND TECHNOLOGY POLICY CENTER

Overview	Primary Sponsors	Policy Issue Areas	MTS
<p>The ongoing military technology revolution, together with the burgeoning information revolution, will strongly affect the way the United States views its security interests and sets its defense policies for the foreseeable future. These twin revolutions may offer major advances in the ability to perform such important tasks as finding and destroying critical targets, projecting forces rapidly anywhere in the world, and conducting warfare from afar with minimal U.S. and collateral casualties. They may also make possible new and radically different kinds of conflict.</p>	<p>OUSDA&T ARPA BMDO DNA J-6</p>	<p>Implications of new technology Exploiting critical technologies Exploring new technologies</p> <p>Warfare in the information age Effects of information technology Cyberspace security</p> <p>Maintaining the defense technology and industrial base Design, R&D, and technology issues Production issues Dual-use technology</p> <p>Acquisition policy System and process reform Cost-analytic methodology</p>	<p>9-12 6-8 3-4</p> <p>8-10 4-5 4-5</p> <p>9-14 3-5 3-5 3-4</p> <p>5-7 3-4 2-3</p>
<p>Understanding how the technological improvements underlying these advances can best be used on future battlefields will require conceptual advances in thinking about military operations and structures. At the same time, DoD must ensure that it will be able to develop promising technologies and produce systems incorporating them. As requirements and procurement budgets decline, DoD will need to be more resourceful in maintaining the industrial production base, the technological base, and an adequate level of competition, especially in view of uncertainty about future threats. This in turn will require acquisition reform and more active pursuit of dual-use technology. Understanding how this spectrum of advances across the technology and acquisition spectrum will materialize can be enhanced by major improvements in modeling and simulation.</p>		<p>Advanced modeling and simulation and other analytic tools Distributed interactive simulation Model development issues</p>	<p>9-12</p> <p>4-5 5-7</p> <p>40-55</p>

FORCES AND RESOURCES POLICY CENTER

Overview	Primary Sponsors	Policy Issue Areas	MTS
<p>The forces needed to carry out new U.S. strategies, and the people and materiel resources that make up those forces, present near- and long-term policy and management challenges. In the near term, the crux of the challenge is readiness, whether in training people or making the logistics system more responsive. In the long term, the challenge is to consider whether and what fundamental changes are needed in view of the new international and technological conditions.</p>	<p>P&R RA HA OUSDA&T/L DLA J-1/J-4/J-8</p>	<p>Preparing forces Training and readiness Reserve forces in operations other than war Planning for coalition operations</p>	<p>7-10 3-4 2-3 2-3</p>
<p>Similarly, the process by which resources are allocated to satisfy force requirements ("PPBS") should be reviewed both for near-term refinements and longer-term redesign.</p>		<p>Managing human resources Accession Compensation Mix and structure Personnel management</p> <p>Managing the support infrastructure Materiel readiness System reform and redesign</p>	<p>22-27 5-6 4-5 5-6 8-10</p> <p>4-7 1-3 3-4</p>
<p>Finally, the role of the defense establishment in achieving America's larger social agenda is an area that requires careful analysis and innovation.</p>		<p>Allocating defense resources Cost analysis Resource allocation PPBS redesign</p> <p>Armed forces and American society Health, drug policy, education, etc. National Guard roles</p>	<p>6-9 2-3 2-3 2-3</p> <p>6-8 4-5 2-3</p>
			<p>45-61</p>

Required Capabilities

The foregoing suggests that NDRI requires between about 120 and 170 MTS in order to maintain its core capabilities and carry out both long-range and quick-response research in the policy issue areas specified. The higher number indicates what would be needed to meet upper-end demands in all areas in any given year—an unlikely eventuality. However, the lower number provides for no significant surge capacity in any area without requiring work in other areas to be curtailed, possibly below critical mass.

Thus, for planning purposes, the FFRDC needs to receive funding sufficient to maintain 120 MTS, while being prepared to justify funding for more than 120 MTS if sponsors' needs and/or Congressional mandates cannot otherwise be met. Experience shows that every year there is at least one extraordinary effort, whether commissioned by the Secretary of Defense (e.g., *Sexual Orientation and U.S. Military Personnel Policy*) or mandated by Congress (e.g., *Defense Nuclear Agency Review*). DoD and FFRDC management can accommodate this type of surge or special need by committing funding above the level required to maintain 120 MTS or by delaying work in other areas. However, below 120 MTS, not all policy issue areas can be supported in the manner expected of a studies and analysis FFRDC. Below 120 MTS, DoD will need to consider which issue areas and/or sponsors might not receive NDRI's independent analytical support.

Ensuring Coherence and Completeness

While concentrating its work in three sponsor-oriented centers and in specific policy issue areas within each center, NDRI must guard against incompleteness and loss of coherence in its long-term research plan and, of course, in its work. The following two figures illustrate how these pitfalls can be avoided. Figure 1 is an illustration of DoD's national security responsibilities, depicted in relation to one another.

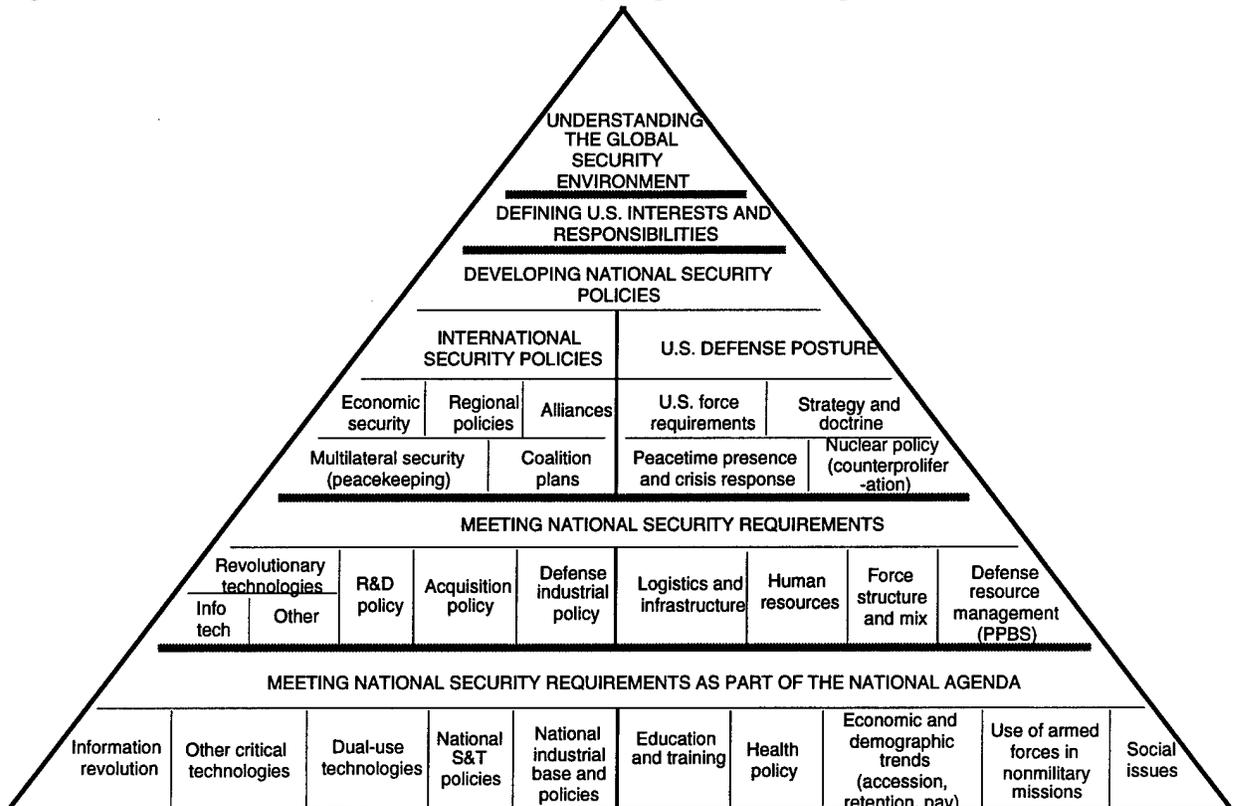


Figure 1—DoD's National Security Responsibilities in the New Global Environment

Figure 2 shows how the research programs of NDRI's three centers align with those responsibilities.

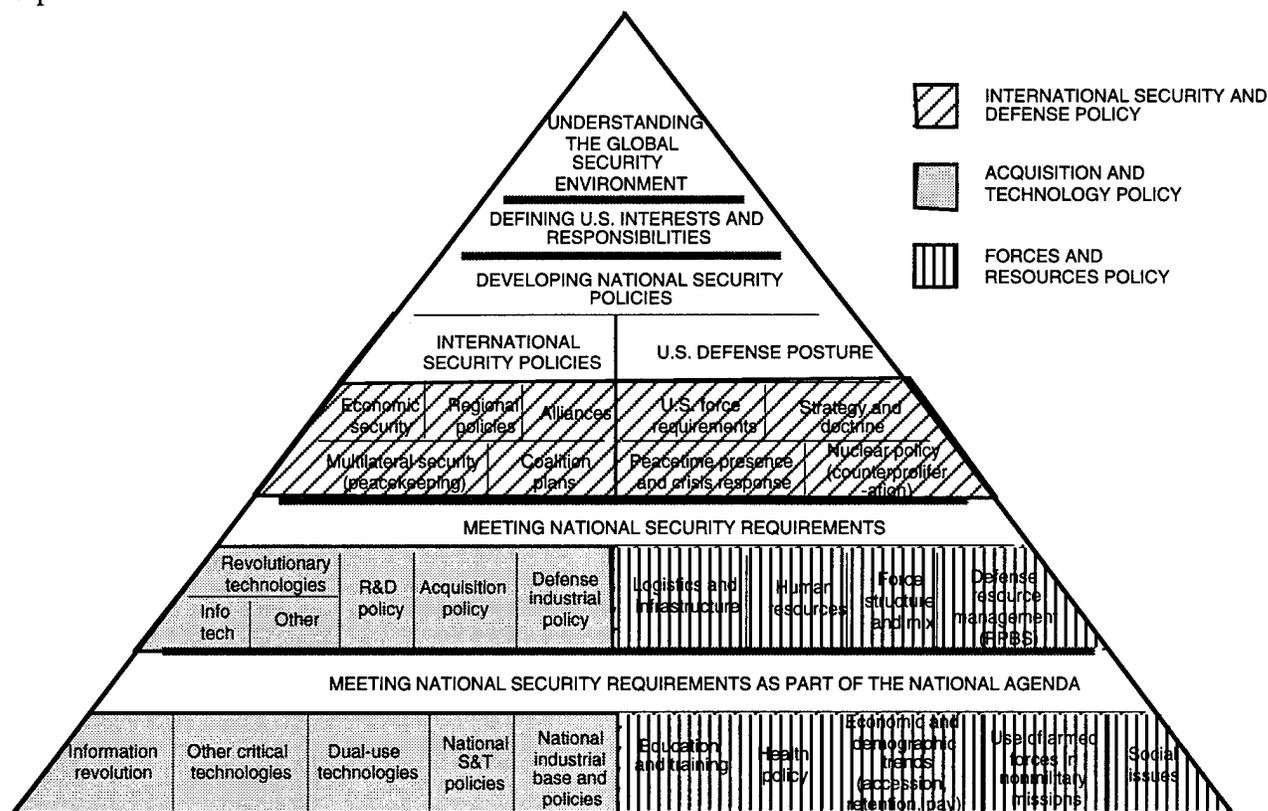


Figure 2—NDRI's Research Program Derives from the Current U.S. National Security Agenda

NDRI should maintain capabilities that equip it to address the entire pyramid. To do so, the FFRDC should be performing some research in every cell every year (which requires a minimum of 120 MTS). By viewing each annual research program from this perspective, NDRI and DoD can anticipate significant gaps in ongoing research and/or in capabilities.

Figure 2 illustrates how the work of one center depends upon the work of another, as well as the relationship of the parts to the whole. Forces and resources (lower right) and technology (lower left) enable DoD to meet the requirements of national strategy (top), in the context of American industry and society as a whole (bottom). Policy research in any cell in the pyramid typically is affected by factors in adjacent cells and beyond. This perspective helps ensure that NDRI research is not compartmentalized. It also helps identify cross-cutting research needs.

Indeed, NDRI must be able not only to meet the research-specific needs of its sponsors but also to address questions that cut across, tie together, and look beyond those sponsors' current concerns and responsibilities. This is an important added value of a policy studies and analysis FFRDC. Moreover, experience suggests that the Secretary of Defense, the Deputy Secretary, and the Chairman of the JCS will have concerns that may not be reflected adequately in the research tasks of individual OSD and Joint Staff sponsors. A DoD-wide perspective must be preserved, and the work of the three centers must be integrated. To illustrate:

- Analysis of future personnel requirements depends on the projected security environment, the changing character of warfare, and the emergence of new technologies, possibly with nonlinear benefits and demands.
- Successful U.S. participation in coalition operations, ranging from MRCs to peacekeeping, depends on international cooperation, interoperability, and personnel who have been prepared to function well alongside those from other nations.
- Readiness requirements must accommodate the wide variation among theaters, threats, and scenarios in the new era. Satisfying these requirements cost-effectively depends not only on appropriate training and materiel availability but on exploiting information technology, using modern (and proven) management practices, and linking readiness investments to readiness results.
- Application of several important technologies may create high-confidence means to prevent the successful use of nuclear weapons by hostile proliferants against U.S. interests, forces, and allies. This could alter U.S. international political strategies for responding to such threats, though it might also indicate a need for changes in how U.S. forces are prepared and employed in crises or conflicts where nuclear use is possible.
- Today's strategies—and the demands they place on technology, forces, and resources—are flexible and, at the same time, predicated on the absence of a rival global power or combination of powers capable of posing multiple threats to U.S. interests. Analysis of long-term trends and possible international political discontinuities is an important investment, even if not dictated by the current policy agenda.

These few examples point to a need for research and analysis that both ties together and looks beyond the policy problems currently facing sponsors. In some cases, this work might be tasked by top leadership of DoD; in others, initiated by NDRI. Often, multiple centers will be involved. The capabilities—people and tools—to perform integrative and advanced research should be the same as those employed to carry out tasks for sponsors, thus maximizing the benefit of such research.

In planning and performing integrative and advanced research beyond that which sponsors task their centers to do, NDRI will use as a framework **six enduring questions** which emerge from the pyramid depicted above:

1. How does the changing world affect American interests and international responsibilities?
2. What policies foster international conditions—security, political, and economic—that advance U.S. interests, minimize threats, and encourage the multilateral sharing of responsibilities?
3. What is the role of U.S. military forces under these conditions?
4. How should the sufficiency of U.S. military forces be measured; and what strategy, size, types, structure, and capabilities of forces will satisfy these needs most efficiently?
5. What human resources, weapons, support, technology, and defense structures do these forces require?

6. How can defense needs be met in ways that both serve and benefit from other national pursuits—industrial, technological, economic, and social?

Annually, NDRI will propose a set of cross-cutting research projects, in addition to those proposed by the three centers, which offer integrative analysis of specific questions of importance to DoD leadership and sponsors throughout DoD. This could include work on long-term policy and strategy issues, research, and analysis of pressing near-term challenges. Typically, 5–10 MTS per year will be appropriate for this work, though the level could increase in response to the needs of the Secretary, Deputy Secretary, or Chairman of the JCS. A proposal along these lines is contained in Part II of this plan.

In addition, as a way of capturing the cumulative value of all research done by the FFRDC, NDRI will provide annually an executive summary of answers to the six enduring questions listed above, based on the body of NDRI policy research. In this way, we will share with our sponsors an answer to the question “What have we learned?” beyond the specific findings of each separate project.

The Research Planning Process

Each year by June 1, NDRI will submit a newly revised research plan, proposing changes in long-term research directions (if indicated by changed world conditions or DoD priorities) and offering a preliminary view of the following year’s research program. Between June 1 and September 1, each of NDRI’s three centers will work out with its DoD sponsors an annual research program.

By September 1, NDRI will submit a revised and more detailed annual research program for the FFRDC and its three centers that reflects the wishes of sponsors, pending appropriation for the approaching fiscal year. On the assumption that NDRI as a whole and each of its centers receive adequate funding to maintain the required capabilities and to carry out the approved annual program, both sponsors and NDRI will be able to plan with confidence the availability of researchers and output, and work can begin at the start of the fiscal year, subject to change in the course of the year.

A Range of Products and Services

Because sponsors will ordinarily want to use NDRI to address complex long-term policy problems requiring thorough research and analysis, the traditional model of a substantial formal study, produced over many months, with interim briefings and a final report, will remain common. However, there will be instances in which a sponsor wants a quick analysis of a more urgent problem. In this case, NDRI will offer an input based on research and analysis already conducted. For example, we have sponsors who have shown an interest in receiving a “two-day, two-page” treatment of a policy problem, informed by existing analysis. In any case, frequent interaction and ready accessibility, sometimes with a more fluid research agenda, can be beneficial to sponsors.

In addition, NDRI can hold research workshops for the benefit of sponsors, and will, of course, include sponsors in RAND’s efforts to inform public debate over policy problems. Finally, NDRI will share with its sponsors the results of work performed by RAND for the Air Force and Army, once it has been approved by those clients for circulation. In sum, there is ample flexibility in research products and interactions, and sponsors should consider and advise their centers of the most useful form as well as the substance of work for FY 1995.

II. NDRI RESEARCH AGENDA FOR FY 1995

The NDRI research agenda for FY 1995—and for every year—should be consistent with the approved long-term framework and responsive to more immediate questions:

- What are the most pressing specific policy research needs of NDRI's sponsors?
- What developments in the policy environment—e.g., new international conditions, technological change, economic discontinuities—require special analytical attention?
- How should the cumulative research and analytical “capital” of the FFRDC be supplemented—e.g., developing new methodologies and tools, performing basic research, integrating previous work, framing new issues?

The pages that follow describe the projects NDRI is tackling in FY 1995. These projects have resulted from extensive dialogue with individual sponsors. The research agenda in any given year will consist of the continuation of work previously commissioned, follow-on analysis, and new issues. Of the topics suggested by NDRI in this plan, roughly one-third represent continuation work, one-third follow-on, and one-third new.

The most salient factors that have shaped NDRI's ideas for FY 1995 research are

- DoD's continuing efforts to define post-Cold War threats, refine post-Cold War strategy, and devise and implement plans to meet the requirements of the strategy.
- the need to understand better the types of hostilities in which American forces might engage, as well as adjustments in strategy, doctrine, weapons, and training necessary to engage successfully.
- the implications of the spread of nuclear and other weapons of mass destruction, ranging from effects on MRC plans to acquisition options to U.S. nuclear weapons policies.
- the need to understand more precisely how key technologies can be developed and harnessed to give the U.S. greater and affordable advantages in key military omissions and tasks.
- the potential to apply throughout the U.S. defense infrastructure business practices and information technologies that have enhanced the performance of private industry in recent years.
- the growing difficulty, with the decline in DoD procurements, of maintaining an adequate defense manufacturing base, R&D levels, and industrial competition.
- the need to improve our understanding of how best to measure, invest in, and enhance readiness.
- the growing pressures to satisfy defense needs at lower budget levels.

- continuing change and uncertainty in the international environment: the uneven transformation and foreign policy of Russia; the complexity of China's growth, politics, and intentions; the effects of Arab-Israeli accommodation on the greater Middle East.
- current and looming crises and instabilities that could harm U.S. interests, especially in Northeast Asia, Eastern Europe, and Mexico.
- the growing gap between demands for peacekeeping and the ability of members and institutions of the international community to take on such responsibilities.
- the political and strategic need to get our close friends to bear more of the burdens and risks of protecting common interests.

The basic premise of NDRI's research strategy—that this particular analytical resource should focus on understanding change and how to adapt to it—is strongly valid in FY 1995. At the same time, there is considerable continuity in the suggested annual research plan, owing to the fact that NDRI and many of its sponsors have already developed a common agenda and have spent a good deal of time in FY 1994 identifying future research needs for the new policy era.

INTERNATIONAL SECURITY AND DEFENSE POLICY

Despite continuing change and uncertainty in world affairs, the outlines of some of the security problems that the United States will face over the next several years are apparent: the fate of democracy and economic reform in Russia and other newly independent states, consolidation of the gains achieved from the Cold War, the outbreak of hostilities resulting from long-festered ethno-nationalist conflicts, the tensions between economic and other security components, the rise in importance of regional powers, the proliferation of weaponry—especially weapons of mass destruction—and the means for delivering them, and the decline in the amount of resources devoted to our military forces.

To address these problems, the FY 1994 research agenda for the International Security and Defense Policy Center (ISDPC) was formulated around six major policy issue areas: global security environment; regional security policies; multilateral security; weapons of mass destruction; strategy, doctrine, and plans; and international economics. The FY 1995 research agenda continues to focus on these areas but extends the research in several dimensions. With the growing influence of China, we plan two new research projects on that country. We propose to assess stability in the Persian Gulf now that a sufficient time has transpired since the Gulf War. This research would focus on Iran's aims and the stability of the Gulf monarchies.

Because the United States will likely deal with countering the proliferation of nuclear weapons on a multilateral basis, we also plan to begin a project on the means for improving U.S.-Allied cooperation on this subject. Finally, with the increasing emphasis on improving joint warfighting capabilities, we anticipate providing assistance on the conduct of joint warfighting assessments.

Global Security Environment

How is the global security environment changing in ways that affect U.S. interests?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Long-term Trends and the Future Security Environment This is part of RAND's continuing work using an aggregated methodology of scaling economic and military dimensions of impending international and regional power balances. It provides DoD with an independent assessment of measures of economic activity of key countries and regions.	USD(P)/NA	40
Impact of Coming Telecommunications Revolutions on International Relations To date, the implications of the "information superhighway" on international relations have been neglected. The effect of the telecommunications revolution could be substantial, affecting perhaps the nature of power between states, the role of sub- and supra-state actors, and the spread of democracy and other ideologies. DoD needs to understand the new world in which communications is an element of warfare both as a potential threat and as a technology that DoD can use.	USD(P)/NA	200
TOTAL		240

Regional Security Policies

What should be the new security order for Europe that takes into account U.S. and European interests there, to the East, and elsewhere?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$ 000)</u>
<p>From Partnership For Peace to Expanded NATO Membership: Managing the Transition</p> <p>Membership expansion is the most important issue facing NATO in this decade. An in-depth analysis of the issues associated with NATO expansion including how the difficult transition from PFP to expansion is to be pursued will provide policymakers a conceptual framework for thinking about the problem. It will also allow formulation of an array of options.</p>	USD(P)/ISA	350
TOTAL		350

What policies can create a Russia that is democratic and stable, moderate and responsible in regional affairs and cooperative globally; and what are the implications if the transition is unsuccessful?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$ 000)</u>
<p>The Ukrainian Security Environment</p> <p>Ukraine occupies a key position between Europe and Russia. To date, it has taken important steps in improving its security position by signing the Trilateral Agreement and agreeing to the Nonproliferation treaty. But can it continue on this course, and if not, what does that spell for future relations with both Russia and the West? What are the likely future security trends in the Ukraine and what options are available to U.S. policymakers?</p>	USD(P)/ISP	389
<p>Evaluating Assistance to the Ukrainian Ministry of Defense for the Development of a Defense Planning Capability</p> <p>In the wake of its separation from Russia, the Ukraine needs a planning capability to determine its defense needs and to chart a course on how to achieve them. This requirement includes a plan on how and when to dispose of its nuclear arsenal. The U.S. can provide assistance in these tasks, to include defining a structure and providing a set of analytic tools.</p>	USD(P)/ISP	225

Regional Security Policies (cont.)

Russia's Strategic Objectives and Options in Europe: Implications for U.S. Policy	USD(P)/ISP	311
Integrating Russia into the post-Cold War European security order will be one of the key policy issues facing the U.S. and its allies. However, Russia's objectives in Europe are far from clear. Needed is a better understanding of Russian policy objectives and its options for obtaining them.		
TOTAL		925

What should be the U.S. strategy for promoting peace, stability, and cooperation in the Asia-Pacific region? What are China's future directions and how can we influence those directions to our advantage?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Chinese Global and Regional Strategy and U.S. Policy: Dynamics and Implications	USD(P)/ISA	350
Detailed research on China's global and regional strategies and their implications for DoD policy can assist DoD in its deliberations over U.S. policy options toward China and future relations with the Chinese military in particular. Our goals are: (1) to understand the political, strategic, and institutional forces that are reshaping the Chinese security policy landscape; (2) to evaluate how economic and technological change in China is likely to affect the pace, scope, and effectiveness of Chinese military modernization; (3) to understand the military's activities in policy areas deemed critical to U.S. interests (e.g., countering the proliferation of WMD capabilities, curbing weapons sales or technology acquisitions that could alter regional security balances); and (4) to evaluate DoD policy alternatives for engaging with the Chinese national security leadership and for improving the prospects for meaningful Chinese participation in future regional security arrangements.		

Regional Security Policies (cont.)

China in the Post- Co Com World: Managing the Technology Flows	USD(P)/ISP	150
<p>China is a key country for controlling the spread of dangerous weapons and technology. This project will assist DoD in designing a strategy to encourage the Chinese to limit their arms sales abroad and to devise methodologies and criteria that the US government could use to assess the effectiveness of current and future Chinese export controls.</p>		
Implications of U.S.-North Korean Agreement: A Conference	USD(P)	50
<p>Of interest is how the "Agreed Framework" on nuclear program will affect North Korean perspectives and policies. Does it reflect a significant change in North Korean approaches? What alternative strategies should the U.S. consider?</p>		
TOTAL		550

What policies would improve the stability of the Greater Middle East and other important regions?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Iran's Destabilizing Potential in the Gulf	USD(P)/S&R	300
<p>Since the revolution of 1979, Iran has made the expansion of fundamentalist Islam a key goal of its foreign policy. The MRC has been the focus of DoD plans to counter Iranian hegemony in the Persian Gulf. However, by so focusing we may be overlooking a variety of ways that Iran could threaten and destabilize its neighbors. The purpose of this project is to develop scenarios of how Iran might seek to dominate or destabilize other Persian Gulf states short of an full scale war and to explore the implications of these scenarios for U.S. policy and military planning.</p>		
TOTAL		300

Weapons of Mass Destruction

What should be the elements of a strategy to retard and counter the proliferation of dangerous weapon systems and technologies?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>Counterproliferation Strategies</p> <p>A major priority of DoD is to define counterproliferation strategies. While various treaties have been established to prevent CBN proliferation, not all countries have entered into these treaties, and some countries are openly violating the treaties. The United States must therefore apply a multi-dimensional strategy for preventing proliferation, but then be prepared to deter , deny , and cope with the use of WMD. This project will propose and analyze strategies for counterproliferation for Europe, the Middle East, and Asia.</p>	USD(P)/ISP	300
<p>Congressionally Mandated Proliferation Study</p> <p>The proliferation of conventional weapons concerns the U.S. Congress. Areas of interest include the international arms market and areas where restraint may be feasible and desirable. Also of concern is the defense industrial base and the need to manage arms transfers during a period high capacity and shrinking markets. Where can the U.S act unilaterally, and where would multi-lateral restraints be more effective?</p>	USDP	500 ¹
<p>U.S. Allied Cooperation on New Nuclear Threats: Phase III</p> <p>Counterproliferation is a difficult issue to explore. This project represents a gaming approach to identifying proliferation issues different governments might have to address. Phase III extends the analysis to a different set of countries.</p>	USD(P)/ISP	100
TOTAL		900

¹ Funding level uncertain.

Strategy, Doctrine, and Plans

How should the military establishment be structured and sized to meet major regional contingency challenges, and what strategies should be employed?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Prototype Modeling of Future Combat RAND's work on the future of warfare concluded that analysis of future combat needs to focus more on strategic and operational events that will determine the course of a conflict. That work also concluded that there is a need for a new class of simple but broad models. This project will develop a prototype model of future combat.	USD(P)/NA	350
Assessing Options for Addressing Future Budget Constraints This project investigates the cost structure of both core and non-core programs as related to the Bottom-up Review, and explores the possibilities for more efficient overall programming. Such steps will include (a) evaluation of possible adjustments to what are widely considered to be defense "infrastructure" accounts; (b) exploration of alternative ways of structuring certain core posture elements that preserve essential capabilities but may permit their retention at reduced costs; and (c) assessment alternative ways of managing some defense activities (e.g., DoD budget entitlements).	USD(P)/S&R	275

Strategy, Doctrine, and Plans (cont.)

<p>Applications Support for the Joint Integrated Contingency Model (JICM)</p>	<p>Various</p>	<p>200²</p>
<p>This project provides application support for users of the RAND-developed Joint Integrated Contingency Model (JICM) that is used extensively within the DoD community. Application support has three components: (1) JICM installation, (2) JICM pooled support, and (3) direct JICM support.</p>		
<p>Joint Analysis Support: Improving Joint Warfighting Assessment</p>	<p>JS (J-8)</p>	<p>200³</p>
<p>The Joint Staff created the Joint Warfighting Capability Assessments process to provide insight into the process for determining joint requirements and resource recommendations. A function of the JWCA process is to get more value and better response from scarce analysis assets. The FFRDCs can assist this process. Specifically, a small team of researchers from the FFRDCs can monitor the JWCA activities and propose analysis approaches, monitor and assess analysis activities, assess results, identify particularly valuable insights, and recommend uses and applications of JWCA analysis.</p>		
<p>Developing Applied Methodologies for Overseas Presence: Exercising the Joint Staff Analytic Architecture</p>	<p>JS (J-5)</p>	<p>400</p>
<p>This project will assist the J-5 in developing improved analytical methodologies for formulating DoD policies, strategies, plans, and programs for overseas presence. Using the "Strategies-to-Tasks Resource Management (STRM) technique as an organizing theme, it will develop specific and usable analytic methods that can help assess overseas presence issues in the context of national objectives and the broader set of DoD policies for developing an overall defense posture and program.</p>		
<p>TOTAL</p>		<p>1425</p>

² Funded by user community; exact funding level uncertain.

³ Funding level uncertain; could be higher.

International Economics

How can the United States best exploit the growing interrelationship between international economics and security?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
No projects currently approved.		
TOTAL		0

ACQUISITION AND TECHNOLOGY POLICY

The research topics emphasized in the research agenda of the Acquisition and Technology Policy Center (ATPC) for FY 1995 are the result of external trends, sponsors' needs, and experience gained in recent research. The first of these factors drives our increasing emphasis on warfare in the information age. Not only is the information revolution affecting the way conventional conflict is fought, but it is also providing new avenues by which U.S. national and economic security can be threatened. These are near-term threats, so research related to them is needed now. Continued emphasis will be placed on mapping out technology investment strategies for the development of systems to support U.S. military operations in the post-Cold War era and on issues related to the defense technology and production base. That era is already here, and U.S. troops could be facing new-era threats with systems designed chiefly to counter Soviet forces. The ATPC is continuing its research on light forces and on technological support for urban and other "low-intensity" operations, while initiating efforts on robotics.

The defense technology and production base that would permit such technologies to be realized also requires immediate attention. Much of that infrastructure is in the private sector, where industry downsizing and restructuring is well under way and will continue apace without any guarantee that the outcome will be favorable to DoD objectives. Here, we are expanding FY 1994 work on prioritizing R&D to improve the acquisition of advanced, high-quality systems. In the more constrained budgetary environment, innovative approaches to acquisition are needed, and the ATPC will be examining the use of commercial technologies for military applications and ways to streamline acquisition regulations and oversight. To determine which technologies to develop and incorporate into weapon systems during the next decade and beyond, a more flexible, robust simulation modeling environment would be of enormous value. The ATPC's strengths in this area are well matched to the Defense Modeling and Simulation Office's needs in their continuing program to bring about M&S improvements, and work in this area will continue.

Implications of New Technology

What critical technologies will enable future U.S. military forces to perform tasks such as (1) projecting force rapidly anywhere in the world, (2) operating against an adversary who might possess a few weapons of mass destruction, (3) finding and destroying critical targets quickly, (4) conducting warfare from afar with minimal U.S. and collateral casualties? Which technologies may have a revolutionary impact on future military operations, and how can they be developed and incorporated into future weapon systems in an era of declining defense budgets?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Rapid Force Projection Technologies	USD(A&T)/AT	300
Uncertainty in threats and areas of conflict, combined with the shrinkage in forward-deployed forces, places a premium on the performance of rapid-deployment forces. Our current effort focuses on advanced systems to enhance our light-force capability.		

Implications of New Technology (cont.)

<p>Advanced Concepts for Tactical Forces</p> <p>Low-intensity conflict, urban warfare, and operations other than war may compose a growing portion of U.S. military activities. We are identifying and evaluating technologies for use by tactical forces in these and other future operations.</p>	<p>ARPA/ASTO</p>	<p>436</p>
<p>Future Close Support Options</p> <p>The greater capability of modern weapon systems, particularly their capability to engage enemy forces a longer ranges, means that the ground commander's needs for close support may differ from those in the past. How those needs might change, what characteristics a weapon system needs to meet those needs, and the relative cost and effectiveness of alternative systems are questions important to answer prior to making decisions about which new systems to pursue.</p>	<p>PA&E</p>	<p>200</p>
<p>Military Applications of Robotics Systems</p> <p>Greater use of robotics could result in fewer casualties and permit more to be done with fewer people—important objectives in the coming years. Our work focuses on scout vehicles for urban and area reconnaissance and related missions.</p>	<p>ARPA/SSTO</p>	<p>455</p>
<p>Time Critical Joint Precision Strike</p> <p>ODS made clear the need to destroy Scud launchers and other time-critical targets, along with the challenge of doing so. We are assessing operational concepts for attacking such targets and making long-term acquisition recommendations.</p>	<p>USD(A&T)/TW</p>	<p>400¹</p>
<p>Analysis of Guidance Technologies Supporting Precision Strike Forces</p> <p>If DoD is to realize precision strike's benefits of high cost-effectiveness and low U.S. casualties, advances in guidance technologies are needed. We are supporting GPS-based guidance and SAR development with technical and operational analyses.</p>	<p>ARPA/ASTO</p>	<p>400²</p>

¹ Funding level uncertain.

² Funding level uncertain; could be higher.

Implications of New Technology (cont.)

FY 95 POET Participation	BMDO	400 ³
<p>ODS demonstrated the importance and difficulty of theater missile defense, and the challenge will grow as missiles proliferate. As part of a team of FFRDCs and national labs, we will support the TMD COEA and finish our boost-phase intercept analysis.</p>		
TOTAL		2591

Warfare in the Information Age

How should the United States prepare for the different types of warfare and adversaries possible in the information age, and how might U.S. prospects be characterized? What new threats to U.S. interests will arise as a result of the information revolution, and how should the United States protect its interests? What challenges and opportunities will advances in information technology offer U.S. military organizations, systems, and operations; and what R&D roadmaps have promise to realize these opportunities?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>Warfare in the Information Age: Information Assurance Strategies The proliferating global linkage of information systems increases their vulnerability to hostile actions by foreign or domestic agents. We are assessing what those vulnerabilities mean for military readiness and proposing protective strategies.</p>	ASD(C3I)	250 ⁴
<p>Advent of Netwar The information technology revolution favors whoever can master the use of network forms of organization. We are determining what forms "netwar" will take, what threats and challenges it will pose, and how the U.S. government should prepare for it.</p>	ASD(C3I)	80 ⁵
<p>First Generation "The Day After...in Cyberspace." The important task of defending information networks first requires the identification of the essential features of that warfare and of the threats to be countered. To that end, RAND's "Day After..." gaming methodology can prove useful in highlighting the issues that require high-level attention.</p>	ASD(C3I)	150
TOTAL		480

³ Funding level uncertain; could be higher.

⁴ Funding level uncertain; could be higher.

⁵ Funding level uncertain; could be higher.

Maintaining the Defense Technology and Production Bases

What institutional arrangements and incentives will best assure that a robust design, R&D, and technology base is sustained? How can the restructuring of the production base be managed to retain the capability to produce various weapon system types at reasonable cost? How might defense R&D gain leverage from commercial technology development, and how might technologies developed for defense be applied to commercial uses?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Strategies for Enhancing the U.S. Science and Technology Base R&D budgets will face greater pressures for efficient allocation and execution. We will propose ways to set priorities among different lines of R&D and consider organizational changes and sourcing alternatives that might make R&D dollars go further.	USD(A&T) & ARPA	500 ⁶
Simulation-Based Tele-Apprentices Application of military R&D to civilian markets might include adaptation of software for commercial training over the National Information Infrastructure. We are testing this concept on aircraft maintenance, which spans military and civilian domains.	ARPA/SSTO	300 ⁷
TOTAL		800

⁶ Funding and level uncertain; could be higher

⁷ Funding level uncertain; could be higher.

Acquisition Policy

How can the acquisition process and strategies be improved to focus scarce acquisition resources on the emerging threat, and how can barriers to implementing these improvements be lowered? How do cost and management evaluations account for the uncertainties and increased flexibility that will be required by smaller production quantities in a downsized industry?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>High-Altitude/Endurance Unmanned-Aerial-Vehicles Acquisition Program Case Study</p> <p>Might acquisition be more efficient if the means to achieve system goals were left to contractors, procurement constraints were relaxed, and commercial business practices promoted? We are assessing the success of such reforms in the HAE UAV program.</p>	ARPA/DO	165
<p>Improving Acquisition Management and Oversight Processes</p> <p>Cost overruns and schedule slippage on major systems, undesirable at any time, make planning particularly difficult when procurement budgets are squeezed. We are reviewing the efficacy of actions taken following the A-12 overrun and delays.</p>	USD(A&T)/ API	195
<p>Intelligence Decision Modeling</p> <p>The continued drawdown of military forces makes it important to make the remaining forces as capable as possible. Better intelligence support might offset force reductions, but it requires a framework to assess the contribution of better intelligence systems before intelligent tradeoffs can be made. That framework should be analytically based and allow tradeoffs among weapon systems, intelligence capabilities, and operational concepts.</p>	DIA	300 ⁸
<p>Strategies for Improving Baseline Estimates</p> <p>Early in the acquisition cycle, all major weapon system programs establish a program baseline, which define cost, schedule and performance targets. The baseline can be a useful management tool, but it needs to be sensitive the unique aspects of the program and its environment. The current process uses a common formula to establish the baseline that does not provide this sensitivity.</p>	USD(A&T)	288 ⁹
TOTAL		948

⁸ Funding level uncertain.

⁹ Funding and level uncertain.

Advanced Modeling and Simulation and Other Analytic Tools

What roles should distributed interactive simulation and man-in-the-loop simulations play in weapon system evaluation, training, and mission planning; and how can those roles be realized? How can standardization, verification, and validation of data and models be improved to permit interoperability; and what are the proper uses of variable resolution and “hierarchy of models” development?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>Analytic Methodologies for Modeling and Simulation</p> <p>Enhanced M&S would support greater acquisition efficiency and training effectiveness—important goals as budgets decline and force structure shifts to the reserves. We are working with DMSO to improve data resource management and model VV&A.</p>	DMSO	595
<p>Using Health Information to Improve Performance and Accountability</p> <p>Numerous initiatives to reform the health care system are underway. Inevitably, these reforms will affect the DoD health care system, one of the nation’s largest. A common feature of reform activities is the need to establish better accountability. Information systems have the potential to assist in establishing better accountability. But to translate that potential into better and cheaper health care, policymakers have to understand how data can be used to improve performance.</p>	ARPA	250 ¹⁰
TOTAL		845

¹⁰ Funding uncertain.

Other

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Analysis of the Defense Nuclear Infrastructure DoD seeks to reduce infrastructure costs while countering nuclear proliferation and maintaining the U.S. nuclear deterrent. We will identify the elements required for the future nuclear infrastructure & where within DoD and/or DOE they should be placed.	ATSD(AE)	250
Assessing the Potential for Nations to Use Biological Weapons in Conflicts Several nations, some hostile to the U.S, either have or are seeing to develop biological warfare capabilities. What uses might these countries intend for these weapons? How likely are these weapons to be effective in the various roles intended for them? Answers to these questions are important so that the U.S. can develop required defensive capabilities.	DIA	225
OSD/JCS Nuclear C3I Review Adjunct The nuclear readiness posture of the U.S. has changed significantly, and OSD and the JCS are reviewing the nuclear C3I requirements. Needed is a rigorous, multidimensional framework for examining the spectrum of nuclear command and control policies, postures, and threats.	ASD(C3I)	70
TOTAL		545

FORCES AND RESOURCES POLICY CENTER

The Forces and Resources Policy Center (FRPC) is the descendant of RAND's original Defense Manpower Research Center (DMRC) that was created by ARPA in 1972. Its purpose then was to help the DoD study issues relating to the end of the draft and the advent of the all-volunteer force. In 1976, sponsorship of the DMRC was assumed by the Assistant Secretary of Defense for Manpower and Reserve Affairs. When NDRI was formed in 1985, the DMRC became a program within the new FFRDC; and, while maintaining a distinct relationship with the manpower and personnel community and the ASD (Force Management and Personnel), it expanded its sponsor base to include Reserve Affairs; Health Affairs; the Office of the Joint Chiefs of Staff; and the Program, Evaluation, and Analysis Office.

Now, the sponsor base is again being expanded to better serve the DoD as the nation transforms its military establishment. Over time, the DMRC successfully balanced the need for the immediate development and analysis of policy options with basic research that provides a firm base of knowledge concerning both internal and external factors that affect the ability of DoD to accomplish its mission. In the future, the FRPC, of which the DMRC is a key component, will also strive to provide a similarly balanced research program.

The FY 1995 research agenda of the FRPC focuses on five policy issue areas: (1) supporting the armed forces as a key institution of American society, (2) managing DoD's human resources, (3) developing and preparing forces to meet their military mission, (4) developing and preparing the support infrastructure that will enable U.S. military forces to accomplish their mission, and (5) designing and developing the proper system to allocate defense resources in an effective and efficient manner.

Developing and Preparing Forces to Meet Their Military Mission

One of the most debated issues of the post-Cold War period has been the future size and structure of American military forces. During the Bush administration, the debate centered on the base force. RAND was asked to lead a congressionally mandated study concerning the mix of active and reserve forces. Then, in the early part of the Clinton administration, that issue was included in the bottom-up review. RAND was again asked to examine such critical issues as implications of operations-other-than-war on the structure of the reserves, as well as the overall readiness of U.S. forces. These research efforts will continue in FY 1995, along with support for the congressionally mandated study on DoD roles and missions.

How should DoD structure its forces?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>Future Active and Reserve Force Mix: An Assessment of Reserve Forces in Operations Other than War</p> <p>The apparent increase in OOTW may be affecting the Active Component's ability to prepare for MRC operations. The Reserve Components could carry part of this burden, but for what type OOTW and to what extent requires analysis.</p>	ASD(RA)	350
<p>Measuring the Advantages of the C-17 Direct Delivery, Intratheater, and Tactical Capabilities</p> <p>Current evaluations of the C-17 focus on its strategic airlift role. But the aircraft can also perform in an intra-theater role as well by delivering cargoes directly to forward austere airfields. Its relatively greater capacity might allow the C-17 to replace C-130 aircraft in intertheater and tactical roles. However, the concepts under which the C-17 would be employed while carrying out such roles require analysis, and the capacities of air bases the C-17 might use require measuring.</p>	PA&E	313
TOTAL		663

How can DoD train its forces?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>Increasing Throughput at the Basic Underwater Demolition and Seal (BUDS) School</p> <p>The Navy's BUDS school is facing new demands for its graduates. But it is unclear if it can increase its output to meet these increased demands and still maintain the high quality of its graduates. Needed is an analysis of its attrition and a comparison with similar courses and recommended changes that will increase output while maintaining quality.</p>	USD(P) & Naval Special Warfare Command	180
TOTAL		180

How can DoD measure and ensure the readiness of its forces?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Joint Personnel Readiness Good tools for measuring joint personnel readiness are absent. Without them, it is difficult to measure the effect of resource decisions on readiness. It is also important to understand the interaction between measures.	JS(J-1)	400 ¹
Relating Factors That Affect Military Unit Training Readiness In times of austere budgets, it is especially important to understand fully the connection between resources and training readiness. Only by knowing this information can informed budget decisions be made.	USD(P&R)	305
Describing and Evaluating Personnel Readiness Models Relating resources to readiness frequently proves difficult. Each service has a set of personnel models that address many aspects of readiness. Needed is qualitative and quantitative information about the modes that use resources as an input. Also needed in an assessment of how well the models relate resources to readiness and how sensitive they are to a given input.	USD(P&R)	150
TOTAL		855

Managing Human Resources

The DoD is the single largest employer in this country. It must attract, retain, and motivate people from all walks of life, working in myriad situations under scores of different personnel regulations. NDRI's FY 1994 research program attempted to maintain a balanced research agenda that addressed the immediate drawdown and the development of policy options to better meet future needs. It also strove to maintain a balance between the development of analytic models and the use of those models for policy research. These research efforts will continue into FY 1995.

¹ Funding level uncertain; could be lower.

How can DoD best recruit personnel in the post-Cold War drawdown era?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>Changing Youth Attitudes</p> <p>One of the strengths of the military services has been the quality of the young people joining their ranks. Will changing youth demographics threaten supply of high-quality recruits? Longer-run assessment complements project below to address recent OSD and Congressional concern about recruiting problems.</p>	USD(P&R)	150
<p>Recruiting Policy and Resources</p> <p>Has there been a change in willingness to serve in Post-Cold War era? Recent recruiting shortfalls have raised high-level concern in OSD and Congress. What are the trends in youth attitudes and enlistment behavior.</p>	USD(P&R)/ FMP	450
TOTAL		600

How should DoD structure its compensation programs for the future?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>Force Structure, Productivity, and the Design of Military Compensation</p> <p>Compensation is a major resource. But is it being used as effectively as it could be to recruit, retain and motivate? Major 95 task is to measure real pay differences across services and with civilian sector.</p>	USD(P&R)/ FMP	200
<p>Reforming the Military Retirement System</p> <p>The military retirement system differs dramatically from those used in civilian organizations. Many argue that the military system should more closely resemble those in private industry because they are more fair to participants, cost the taxpayer less, and are more flexible. But the implications of such a switch require analysis to ensure that the benefits of the military retirement system are not lost in the attempt to move to a more efficient, cost effective system.</p>	PA&E	265
<p>A Compensation Systems for the 21st century: Support for the 8th QRMC</p> <p>Applies recent work on military compensation and future military careers--including previous 7 projects--to the work of the QRMC. Previous similar efforts to support the QRMC have been very successful.</p>	USD(P&R)/ FMP	600
TOTAL		1065

How should DoD manage its personnel, especially during the drawdown period?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Career Retention Indicators In attempting to maintain force levels and quality, it is important to identify trends early enough to allow policy responses. This project is developing method for anticipating changes in retention early enough to take policy action. Also providing valuable information on effects of drawdown on enlisted personnel.	USD(P&R)/ FMP	500
Evaluating Personnel Policy Options for Peacetime and Wartime Utilization of Reservists The drawdown of active forces has placed increased reliance on the reserves. Thus demand for peacetime use of reserves to perform functions that contribute to active force readiness has increased. Before reserves are widely used in such roles, it is necessary to analyze the effects on such commitments on budgets and future recruiting.	ASD(RA)	350
Integration of Personnel Management Analysis Tools: Implementing the Analytic Architecture Continuation of major effort to develop analytic model to address accessions, compensation, and personnel management policy. Model now in use. Project will support users and make changes requested by P&R staff.	USD(P&R)/ FMP	200
Promotion of Officers by Race and Gender Responding to data showing disparities in promotion rates by race, Secretary Perry directed major study of officer pipeline. Project task is to fill most critical research gaps.	USD(P&R)/ FMP	400
TOTAL		1450

What should be the future structure of the officer and enlisted force and how should they be managed?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>Future Officer Management</p> <p>Follow-on to Congressionally-directed effort to evaluate need for future changes in officer management, which was well-received. Will complete analytic model needed to determine effects of specific policy changes and develop specific policy changes.</p>	USD(P&R)/ FMP	425
<p>Future Enlisted Force Management</p> <p>Success of officer management project led sponsor to request similar effort for enlisted force.</p>	USD(P&R)/ FMP	200
TOTAL		625

Developing and Preparing the Support Infrastructure

Just as manpower and personnel systems must adapt to the changing world environment and new technologies, so must other DoD institutions that support our forces. NDRI's previous research on DoD business process reform has illustrated tremendous potential for improving the efficiency of the DoD. Our future research must help the DoD implement needed change through a better understanding of the likely barriers to success and ways to remove them.

How can DoD initiate reforms to provide a more responsive and cost-effective support structure?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
<p>Improving DLA's Order Fulfillment Process</p> <p>High-performing commercial companies routinely fill orders within days. Rapid response can both improve readiness and save money. This project examines ways for DLA to improve the speed of its delivery.</p>	DLA	500 ²
<p>Assessment of Redistribution Policies</p> <p>It is important to ensure that modern equipment made available from the active forces as a result of the drawdown is distributed to the reserves in a fashion that enhances combat capability and does not create training and maintenance problems.</p>	ASD(RA)	150
TOTAL		650

² Funding and level uncertain.

Allocating Defense Resources in an Effective and Efficient Manner

For more than forty years RAND has been at the forefront of research concerning the process by which the DoD allocates its resources. Starting with the original research on the tenets of the Planning, Programming and Budgeting System (PPBS) in the 1950s, our work has focused on determining appropriate costing methodologies for the development and assessment of force structure alternatives. In the post-Cold War era, and with the advent of the Goldwater-Nichols Act, it is appropriate to assess again the process by which resources are allocated. In FY 1995, our cost research efforts will include renewed emphasis on the design of the overall resource allocation system.

How best can DoD allocate scarce resources?

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Force and Support Structure Costing	PA&E	850
Continuation of major effort to develop ability to quickly and accurately estimate costs of major program changes--an ability OSD currently lacks. Model development well advanced.		
Understanding the Sources of Cost Growth	PA&E	175 ³
Accurately assessing the cost of sophisticated weapons systems has always been difficult. Uncertainty arises not only from the cost analyses but also from the assumptions underpinning the program. An understanding of the sources of error in estimating costs can help ensure better informed and more accurate acquisition decisions.		
TOTAL		1025

The Armed Forces As a Key Institution of American Society

With the end of the Cold War, the DoD and Congress have maintained a continuing dialogue concerning the proper role of our active and reserve forces in American society. This dialogue has included floor speeches by senior members of the Armed Services Committees, the development of pilot programs involving the armed forces in a number of nontraditional programs, and direct requests that the Secretary of Defense commission an FFRDC—in this case NDRI—to report on the state missions of the National Guard. The recently completed bottom-up review acknowledged DoD's role in supporting and funding state National Guard missions and its role in supporting democracies around the world. Our FY 1994 research program includes research on the impact of a new kind of JROTC program, the state missions of the National Guard, and the impact of specific DoD drug initiatives. These efforts will continue into FY 1995.

How can DoD help achieve the American security agenda?

³ Funding and level uncertain.

<u>Topics</u>	<u>Primary Sponsor</u>	<u>Funding (\$000)</u>
Expanding JROTC to Include Vocational Education: Career Academies DoD is cooperating with Dept. of Education. to determine if a combined JROTC and career academy program is effective in helping inner-city youth.	USD(P&R)	385
State and Federal Missions of the National Guard Completion of Congressionally-directed study of state and local missions of the National Guard. Necessary complement to earlier RAND Total Force Study as basis for structuring the Guard.	ASD(RA)	150 ⁴
TOTAL		535

⁴ Funding and level uncertain; could be higher.

NDRI CROSS-CUTTING RESEARCH AND ANALYSIS

It is important that NDRI conduct overarching research and analyses that respond to policy concerns of DoD as a whole and that address mutual needs of sponsors of more than one of NDRI's centers. NDRI will ensure that every piece of research informs and is informed by the rest of its work. However, annual research plans should also contain specific agendas of research on cross-cutting issues. The following project is underway for FY 1995. Others may emerge during discussions of the plan with sponsors or as a result of NDRI's ongoing program.

NDRI urges its individual sponsors and families of sponsors to offer to cosponsor research on these or other cross-cutting topics. We also suggest that the DoD steering group for NDRI consider supporting work along these lines to complement the plan each of NDRI's three centers works out with its sponsors.

Cross-Cutting Analysis in NDRI

Project	Descriptions	Funding
Planning Future Forces	This work began with concept formulation funds to assess alternative future forces for the period 2005-2015. The primary interest is in possible nonincremental changes that might exploit technology and doctrine, improve capabilities, and, simultaneously reduce costs. Analytically, the emphasis is on designing for flexibility and robustness of capability across a broad range of plausible contingencies and detailed assumptions about those contingencies.	TBD

Support to the Commission on Roles and Missions

NDRI is also providing support to the Commission on Roles and Missions of the Armed Forces. The objective of the project is to provide analytic support to the Commission. The Commission has been chartered by Congress to provide an independent review of the roles and missions of the armed forces to the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the Congress. Within the broad framework of evolving national security roles, the Commission will review roles, missions, and functions of the services. Funding for FY 95 is \$1194.