ANNUAL REPORT 2003

RAND CORPORATION

Contents

The Wisdom of the Long View

MESSAGE FROM THE CHAIRMAN AND THE PRESIDENT

Our proudest achievements in 2003, as in many years, occurred when we could analyze policy problems in long time frames, looking both behind us and in front of us. We live in a world of mostly short time frames. It seems that policy issues are often driven by the 24-hour news cycle. Many of our clients, in the public and private sectors alike, feel trapped by the pressure of tight deadlines. As one of our clients put it, “In this place, long-range planning is ‘close of business.’”

We at the RAND Corporation are fortunate to have clients and donors who value the long view. We are happy to help resolve short-term problems, too. But even then, we find that we do our best work when we can analyze short-term problems in the context of a longer perspective.

Our nation and our world continued to grapple with long-term policy challenges in 2003. Challenges like nation-building in Afghanistan and Iraq. Population pressures in developing countries. Aging aircraft amid a shrinking aircraft industry. The Army’s bold plans to transform itself. Worsening destruction caused by floods, hurricanes, and other natural disasters. Social, economic, environmental, and technological transitions with uncertain consequences. Immigration and its disputed consequences. Poor health care and its harmful consequences. Children traumatized by violence and its tragic consequences. And so on.

Chairman Ronald L. Olson and President James A. Thomson at the construction site of the new RAND headquarters in Santa Monica, California, February 2004.

None of these challenges could be met or tolerably mitigated by relying on snap judgments, daily news stories, or hasty research projects. The resolution of these kinds of challenges requires a thorough inspection of the contributing historical factors and a hardheaded appraisal of the feasible future alternatives. The historical factors often span decades, if not generations. The future solutions may entail the work of decades, if not generations.

Now and then, we could discover some surprisingly good omens, such as (a) the potential "demographic dividend" of managed population growth in developing countries and (b) the potential benefits of child mental health care treatments. We could also uncover some reasons to be reassured, such as (a) the steady progress of Latino immigrants in America and (b) the stable workload borne by American schoolchildren over the past 50 years.

The greater our ability to take the long view of important policy issues, the greater our ability to offer assistance that could lead to long-term success. In the pages that follow, we describe ten of the ways in which our distinctly long view of policymaking helped to make us an especially valuable resource in 2003.

When we at RAND take the long view—of nation-building, demographic trends, military readiness, the environment, immigration, health care, child development, and other important issues—we look in both directions. We look backward to understand an issue in its historical context, and we look forward to consider the long-term ramifications of the choices that could be made today. When we at RAND take the long view, we aim to serve the public interest not merely for the sake of us living today in America but also for the sake of generations to come around the world.

Ronald L. Olson
Chairman

James A. Thomson
President and CEO

60 Years of Nation-Building

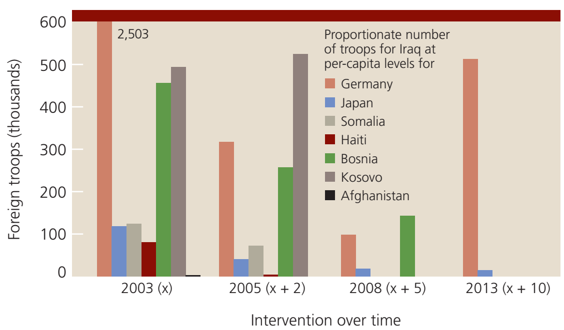
There was no task more urgent in 2003 than the dual challenge of rebuilding Afghanistan and Iraq. There was no better analysis of this challenge—and no clearer accounting of the likely requirements for success—than the work of former U.S. ambassador James Dobbins and his team of RAND researchers. Their work continues to inform global deliberations about how to fulfill the responsibility of rebuilding these two war-torn countries.

The RAND team compared the levels of progress toward democracy in the most instructive cases of U.S.-led nation-building over the past 60 years: Germany, Japan, Somalia, Haiti, Bosnia, Kosovo, and Afghanistan. The team concluded that the current American efforts in Afghanistan and Iraq have yet to fully reflect some of the hard-learned lessons from either the 1940s or the more recent—and, in some respects, more relevant—nation-building experiences of the 1990s.

The team conducted a straightforward accounting of the levels of troops, money, and time that have led to either success or failure in the past. The team then applied the historical lessons to Iraq. As for troops, the team found that Iraq could need as many as 500,000 U.S. and coalition troops through 2005 to achieve the level of security attained in Kosovo during the first two years of rebuilding efforts there (see Figure 1). As for money, the team found that

FIGURE 1

Based on Kosovo Standards, Iraq Would Need 526,000 Foreign Troops Through 2005



SOURCE: *America's Role in Nation-Building*, 2003.
NOTE: Year x = 2003, the year of intervention in Iraq.

James Dobbins

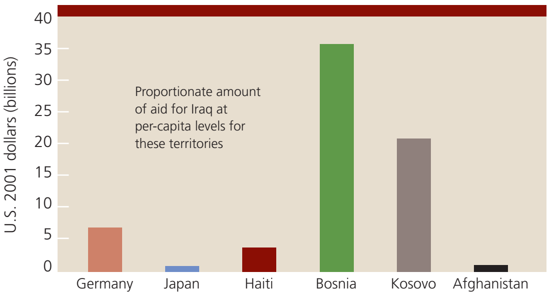
Ambassador James Dobbins directs the RAND International Security and Defense Policy Center. He has held State Department and White House posts, including Assistant Secretary of State for Europe, Special Assistant to the President for the Western Hemisphere, Special Adviser to the President and Secretary of State for the Balkans, and Ambassador to the European Community. He has also undertaken numerous crisis management and diplomatic troubleshooting assignments as special envoy for Afghanistan, Kosovo, Bosnia, Haiti, and Somalia. In 2001, Dobbins was designated by the Bush administration as its representative to the Afghan opposition tasked with pulling together and installing a broadly based successor to the Taliban regime. Dobbins represented the United States at the Bonn Conference that established a new Afghan government, and, on December 16, 2001, he raised the flag over the newly reopened U.S. Embassy.

UNANIMOUS ALLIES NATO soldiers assume command of the International Security Assistance Force, Kabul, Afghanistan, August 2003.

Iraq could need $36 billion in foreign aid exclusively for civilian reconstruction through 2005 to achieve the levels of reconstruction and economic growth attained in Bosnia during the first two years of rebuilding efforts there (see Figure 2). As for time, the team found that none of the historical cases of nation-building has been successfully completed in less than seven years.

FIGURE 2

Based on Bosnia Standards, Iraq Would Need $36 Billion in Foreign Aid Through 2005



SOURCE: *America's Role in Nation-Building*, 2003.

Since Dobbins and his team released their report in July, their analysis has helped to frame the national and international debate about what needs to happen in Iraq. Regardless of the final outcome in that country, the RAND team has given policymakers and people around the world a set of yardsticks by which to measure progress not merely in Iraq but elsewhere in the future as well. As Dobbins concluded, "Many factors can influence the ease or difficulty of nation-building, but the single most important controllable determinant seems to be the level of effort, as measured in troops, money, and time."

America's Role in Nation-Building: From Germany to Iraq, 2003, James Dobbins, John G. McGinn, Keith Crane, Seth G. Jones, Rollie Lal, Andrew Rathmell, Rachel Swanger, Anga Timilsina, MR-1753-RC.

"Nation-Building: The Inescapable Responsibility of the World's Only Superpower," *RAND Review*, Vol. 27, No. 2, Summer 2003, pp. 16–27, James Dobbins, CP-22-0308.

Andrew Rathmell

Andrew Rathmell is a research leader at RAND Europe, where he specializes in providing analytical support to governments, security bodies, and corporations on terrorism and security issues. Rathmell is also an adviser to the Terrorism Research Center; is a frequent contributor to several media outlets, including the BBC, Channel 4, ABC, CNN, Sky, *The Economist, Janes Intelligence Review*, and others; and serves on the editorial boards of a number of scholarly journals. In addition, he is a frequent guest lecturer at government and private-sector venues worldwide. Rathmell has held research awards from the Economic and Social Research Council, the Engineering and Physical Sciences Research Council, and NATO. He is a specialist adviser to the House of Commons Select Committee on Defence, which is inquiring into the defense and security of the United Kingdom against terrorism. He is currently director of the Coalition Provisional Authority's Office of Policy Planning and Analysis in Baghdad, Iraq.

Demographic Forecasting

The July/August issue of *The Atlantic Monthly* magazine featured ten essays by RAND experts forecasting "headlines over the horizon." The essays discussed global-security developments that "aren't getting the attention they deserve," according to the magazine. One of the essays foretold of the looming security implications of a demographically withering Russia.

Julie DaVanzo, Olga Oliker, and Clifford Grammich foresaw that more is at stake than a decline in numbers. The Russian population, which stood at 148 million in 1992, could fall below 100 million by 2050. Meanwhile, the population is getting older. The number of Russians between the ages of 15 and 24 could shrink by nearly half over the next 15 years. Among the younger Russians, men in particular are plagued by alcoholism, tuberculosis, HIV/AIDS, and suicide.

The security implications are dire. Russia's military, police, border guards, and other security forces might not be able to fill their ranks in the coming years. The RAND team has warned that Russia could,

FAREWELL Russian conscripts wave to their loved ones, Moscow, Russia, November 2002.

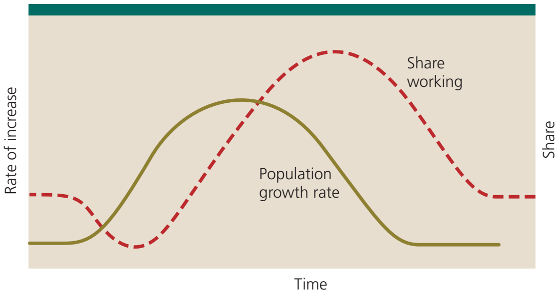
"Russia's military, police, border guards, and other security forces might not be able to fill their ranks in the coming years."

as a result, suffer increasingly severe setbacks in its ongoing battles against smuggling, terrorism, and weapons proliferation. More worrisome still, all of these threats pose dangers far beyond Russia's borders.

In an upbeat variant of this kind of long-term demographic forecasting, a separate RAND study found that developing countries with rapidly growing populations could enjoy a "demographic dividend" of economic growth if the countries can reduce their high fertility rates and simultaneously implement policies to promote human development. These policies would focus on health care, family planning, education, and job opportunities. Policies of these kinds would allow countries that are experiencing rapid population growth to create an age distribution with a larger share of productive working-age people relative to younger dependents (see Figure 3).

FIGURE 3

A Larger Share of Working-Age People Could Boost Income Growth and Savings



SOURCE: *The Demographic Dividend*, 2003.

Assessing Russia's Decline: Trends and Implications for the United States and the U.S. Air Force, 2002, Olga Oliker, Tanya Charlick-Paley, MR-1442-AF.

The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change, 2003, David E. Bloom, David Canning, Jaypee Sevilla, MR-1274-WFHF/DLPF/RF/UNPF.

Dire Demographics: Population Trends in the Russian Federation, 2001, Julie DaVanzo, Clifford Grammich, MR-1273-WFHF/DLPF/RF.

"A Shrinking Russia," one of a series of ten essays in "Headlines over the Horizon," *The Atlantic Monthly*, July/August 2003, pp. 84–86, Julie DaVanzo, Olga Oliker, Clifford Grammich.

"Tackling Russia's Demographic Meltdown," *The Russia Journal*, June 7–13, 2002, p. 15, Clifford Grammich, Julie DaVanzo.

"Too Few Good Men: The Security Implications of Russian Demographics," *Georgetown Journal of International Affairs*, Summer/Fall 2003, pp. 17–26, Julie DaVanzo, Olga Oliker, Clifford Grammich.

Julie DaVanzo

Julie DaVanzo is a senior economist at RAND. She directs Population Matters, a program that has produced a series of high-quality, highly visible publications tailored for dissemination to diverse and international audiences. DaVanzo's congressional outreach efforts, her work with a communications consulting firm, and the translation of products into multiple languages (including Chinese, Russian, Portuguese, French, Spanish, and Arabic, among others) have elevated RAND's profile in the policy community and demonstrated the value of products that focus on research dissemination. Population Matters also bridges RAND's work on national security issues and demography, exploiting RAND's unique advantage in this crosscutting area.

History and Future of Aircraft

Our research on military aircraft spanned nearly a century of innovation and consolidation in the U.S. combat aircraft industry and peered several decades into the future of aircraft maintenance.

RAND historian Mark Lorell reviewed the history of the U.S. aircraft industry since 1909 and identified five eras of revolutionary innovation (see Table 1). He found that each era of innovation began with vigorous competition among at least seven experienced, credible prime contractors. Intriguingly, the contractors that tended to be the greatest innovators were most often not among the industry leaders of the prior technological eras. In attempting to displace the market leaders, the second-rank firms were willing to take greater financial and technological risks, thus setting off the intense competitions to innovate among the many qualified contractors.

The number of contractors was only one important factor driving innovation. The other factors included market demand, technology developments, and government requirements. However, the historical evidence suggests that the existence of numerous prime contractors, some of which were dominant in sales and some of which were second rank, was conducive to higher levels of innovation once the demand changes and the market conditions were right.

As shown in Figure 4, today there are only 3 competitive U.S. military aircraft contractors, down from 9 in 1980 and 11 in 1960. Innovation could suffer because of this consolidation and other trends, such as the focus on fewer development programs, the complexity of the aircraft being developed today, and the dwindling amount of design and development work promised beyond the present decade.

RAND physicist John Birkler and his colleagues identified the most serious risk facing major prime contractors today: There might not be enough new work in the second half of this decade to enable all three of the surviving prime contractors to sustain adequate

John Birkler

John Birkler joined RAND in 1977 and is a senior member of the technical staff responsible for managing U.S. Navy, U.S. Coast Guard, and UK Ministry of Defence research projects and mentoring the Navy and Marine Corps executive fellows at RAND. His research interests span RDT&E strategies and planning, industrial base, acquisition, management, and organization issues. His work has covered a wide range of systems, including the JSF, F-15, F-14, B-2, A-12, C-5, C-17, F-117, F/A-18 E/F, advanced cruise missile, Tomahawk, precision conventional munitions and U.S. and Royal Navy submarines, aircraft carriers, and surface combatants. Birkler is currently working with the DD(X) program office developing acquisition strategies.

TABLE 1

Five Principal U.S. Technology Eras and Their Innovation Periods for Fighters and Bombers (Airframes and Engines), 1909–2000

Years	Era	Innovation Periods: Technology Revolution	Innovation Periods: Technology Refinement
1909–1931	Biplane	1909–1916	1916–1931
1931–1945	Prop monoplane	1931–1940	1940–1945
1942–1953	Subsonic jet	1942–1947	1947–1953
1953–1981	Supersonic jet		
	Early supersonic jet	1953–1962	1962–1972
	Agile supersonic jet	1972–1974	1974–1981
1981–present	Stealth	1981–1990	1990–present

SOURCE: *The U.S. Combat Aircraft Industry*, 2003.

STEALTHY WARRIOR F-117A Nighthawk flies over the New Mexico desert. Nighthawks dropped precision-guided bombs at the outset of the war in Baghdad, Iraq, March 2003.

teams of engineers and technical managers for technology development, advanced design studies, and prototype testing. The RAND analysts suggested partial solutions to this problem. One option would be for the government to fund both a continuing series of advanced design studies and the development of experimental concept prototypes. This strategy would yield a range of new technologies and system concepts while sustaining an energetic level of competition in the industry.

Peering farther into the future, RAND logistician Raymond Pyles observed that the U.S. Air Force is facing unprecedented challenges in maintaining its aircraft fleets. In the 1970s, the Air Force replaced each aircraft every 20 years. Today's plans call for keeping some aircraft operating up to 80 years, far longer than has ever been attempted before. The implications—for safety, availability, and cost—remain largely unknown. All the experts agree that the Air Force will need to invest more in personnel and maintenance. But there has been no way to predict, even within a reasonable estimated range, how much more. Until now.

Pyles developed a mathematical model to predict the increased maintenance needs over the life of an aircraft. He found that complex aircraft will need more maintenance later in life than will simpler aircraft. He found that the amount of maintenance required will rise at a faster rate over time for larger aircraft, such as cargo planes, than for smaller aircraft, such as fighter planes (see Figure 5). One way to manage the costs would be for the Air Force to set expenditure thresholds at which it would purchase new aircraft rather than incur the costs of further maintenance.

Aging Aircraft: USAF Workload and Material Consumption Life Cycle Patterns, 2003, Raymond A. Pyles, MR-1641-AF.

Assessing Competitive Strategies for the Joint Strike Fighter: Opportunities and Options, 2001, John Birkler, John C. Graser, Mark V. Arena, Cynthia R. Cook, Gordon Lee, Mark Lorell, Giles Smith, Fred Timson, Obaid Younossi, Jon G. Grossman, MR-1362-OSD/JSF.

Competition and Innovation in the U.S. Fixed-Wing Military Aircraft Industry, 2003, John Birkler, Anthony G. Bower, Jeffrey A. Drezner, Gordon Lee, Mark Lorell, Giles Smith, Fred Timson, William P. G. Trimble, Obaid Younossi, MR-1656-OSD.

The U.S. Combat Aircraft Industry, 1909–2000: Structure, Competition, Innovation, 2003, Mark Lorell, MR-1696-OSD.

FIGURE 4

A Shrinking Industrial Base

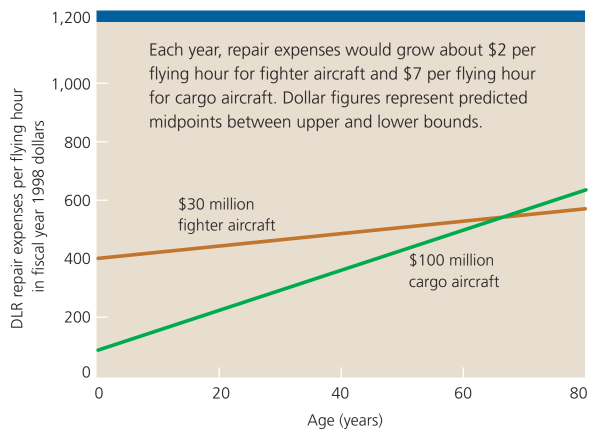
In 1960, there were 11 contractors able to design and to build military aircraft that met the nation's needs. By 1980, that number had dropped to 9. Now, only 3 companies remain.

1960	1980	2000
Lockheed	Lockheed	Lockheed Martin
General Dynamics	General Dynamics	
Boeing	Boeing	Boeing
North American	North American	
McDonnell Douglas	McDonnell Douglas	
Northrop	Northrop	Northrop Grumman
Vought	Vought	
Grumman	Grumman	
Fairchild	Fairchild	
Republic		

SOURCE: *Competition and Innovation in the U.S. Fixed-Wing Military Aircraft Industry*, 2003.

FIGURE 5

DLR[a] Repair Expenses Grow Steadily as Aircraft Age



[a] DLR = depot-level-reparable

SOURCE: *Aging Aircraft*, 2003.

Long-Term Army Transformation

The U.S. Army has developed a long-term plan to transform itself into a force that is more effective, responsive, flexible, and logistically supportable. RAND has helped the Army to pursue its goals in each of these areas.

Emerging missions in the world's security environment will likely require more combat power than that of today's light infantry forces and yet greater responsiveness than that of today's heavy forces. Regarding the war on terrorism, RAND analyst Bruce Nardulli and his team found that some potential missions—such as seizing and neutralizing weapons of mass destruction—will demand new combinations of combat power. The team proposed a "modular" concept, mixing small pieces of "medium-weight" wheeled armored units with light infantry and special operations forces to achieve both the combat power and the responsiveness required for such missions.

FIGURE 6

Predicted Rapid Deployment Times to Key Areas from Regional Bases in Guam, Louisiana, Germany, and Diego Garcia

SOURCE: *The Stryker Brigade Combat Team*, 2002.

Our studies show that improvements in command, control, communications, intelligence, surveillance, and reconnaissance capabilities can further increase the effectiveness of such tailored forces.

One goal of the Army is to be able to deploy a medium-weight brigade anywhere in the world within four days. The goal cannot now be met, primarily because destination ports and airfields have limited throughput capacity. However, some alternative approaches could still reduce deployment times significantly. Analyst Alan Vick and his team suggested that the Army could identify the regions where the United States is in greatest need of a rapid-response capability and prepare regional bases ahead of time to act as launching pads to nearby destinations. Figure 6 shows the likely deployment times from four suggested regional bases to key areas around the globe.

Noting the expense of prepositioning equipment overseas for an entire brigade, analysts Eric Peltz and John Halliday suggested prepositioning only trucks and other non-armored rolling stock. These assets consume more than half the airlift needed to move a brigade but are considerably cheaper than armored vehicles. Peltz and Halliday also reinforced the theme of modularity, showing how combinations of modules from all of the services could be assembled quickly to meet the immediate needs of a crisis. Meanwhile, analysts John Gordon and David Orletsky demonstrated the advantages of fast sealift, as opposed to airlift, in speeding the Army's response to crises. By rethinking its long-term plans in these ways, the Army could become better prepared to respond quickly to varied, difficult, and unanticipated situations around the world.

RAND researchers have suggested several options for the Army to improve its flexibility. Increasing the number of soldiers in some specialty areas (such as

“Some potential missions—such as seizing and neutralizing weapons of mass destruction—will demand new combinations of combat power.”

civil affairs and military police) would expand the Army’s versatility in conducting stability and support operations, where such skills are in high demand. Regarding homeland security missions, RAND political scientist Lynn Davis suggested increasing the overall number of active Army forces as one obvious possibility. Other options include making homeland security the primary mission of the National Guard or developing a dedicated set of homeland security capabilities in the active Army.

Another important goal for the Army is to improve its ability to support and to maintain its forces efficiently. Toward this end, Eric Peltz proposed better ways to link logistics system development with weapons system development, both of which help to sustain Army forces. Peltz showed how to integrate a set of existing and new logistics metrics into the weapons system development and acquisition processes. The metrics track several factors related to both the weapons and logistics systems, factors such as the percentage of time a weapon is ready for use, the length of time a deployed unit can operate independently, the number of people and amount of equipment needed for maintenance, and the total costs of maintenance.

“Defining the Army’s Homeland Security Needs,” in Lynn E. Davis, Jeremy Shapiro, eds., *The U.S. Army and the New National Security Strategy*, 2003, Chapter 4, pp. 61–83, Lynn E. Davis, MR-1657-A.

Equipment Sustainment Requirements for the Transforming Army, 2003, Eric Peltz, MR-1577-A.

The Global War on Terrorism: An Early Look at Implications for the Army, 2003, Bruce Nardulli, DB-416-A.

“Moving Rapidly to the Fight,” in Lynn E. Davis, Jeremy Shapiro, eds., *The U.S. Army and the New National Security Strategy*, 2003, Chapter 9, pp. 191–216, John Gordon, David Orletsky, MR-1657-A.

Speed and Power: Toward an Expeditionary Army, 2003, Eric Peltz, John M. Halliday, Aimee Bower, MR-1755-A.

The Stryker Brigade Combat Team: Rethinking Strategic Responsiveness and Assessing Deployment Options, 2002, Alan Vick, David Orletsky, Bruce Pirnie, Seth Jones, MR-1606-AF.

HIGHLY DEPLOYABLE Members of a Stryker Brigade Combat Team in wheeled armored vehicle, Osan airbase, South Korea, July 2003.

Relying on More than the Weather

Nationwide economic losses from disaster relief have risen at an alarming rate. In the 11 years between 1978 and 1989, the Federal Emergency Management Agency paid out about $7 billion in disaster relief (in fiscal year 2001 dollars). In the subsequent 12 years, the payouts increased more than fivefold, to more than $39 billion (see Figure 7).

The primary cause of the rising payout appears to be the growing population in areas that are vulnerable to natural hazards. In spite of this trend, disaster research has focused mostly on improved weather forecasting and other short-term warning techniques. Research has placed much less emphasis on efforts to help reduce the long-term losses caused by the destruction of homes, buildings, and the complex infrastructure of the built environment, which includes public utilities, roads, transportation systems, communications networks, and other critical facilities.

VULNERABLE, NATURALLY Luxury home, San Diego County, California, October 2003.

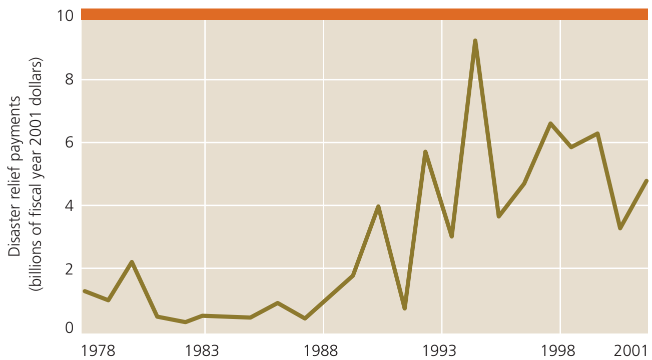
> "The primary cause of the rising payout appears to be the growing population in areas that are vulnerable to natural hazards."

RAND scientist Charles Meade calculated that the federal government spends about six times more each year on research for short-term disaster prediction than for long-term disaster mitigation. He recommended several steps to identify a research strategy that would help strike a better balance. Important elements of such a strategy would be to establish a comprehensive loss database, to use mathematical models to identify the most crucial research needs, and to reorient research and development toward long-term loss mitigation rather than short-term prediction.

Assessing Federal Research and Development for Hazard Loss Reduction, 2003, Charles Meade, Megan Abbott, MR-1734-OSTP.

FIGURE 7

Average Annual Payouts for Disaster Relief Increased Dramatically After 1989



SOURCE: *Assessing Federal Research and Development for Hazard Loss Reduction*, 2003.

Shaping the Next 100 Years

The world faces profound social, economic, environmental, and technological challenges. As a society, our responses to these challenges over the next decade—stemming global terror, halting the spread of AIDS and other infectious diseases, designing a global trading system, achieving sustainable development, managing new genetic technologies, and so on—will send ripple effects throughout the 21st century.

Nonetheless, it is rare to find any systematic consideration of the effect of today's actions much beyond the immediately foreseeable future. Even when decision-makers have a long-term perspective, they are often uncertain about how to translate their concerns into action. The inability of analysts to offer policymakers objective, practical guidance in planning for the long term often results in the abandonment of important policy goals, simply because they cannot be connected directly to credible near-term actions.

Fortunately, new methods enabled by the capabilities of modern computers could dramatically improve our ability to reason about the long-term future. RAND analysts Robert Lempert, Steven Popper, and Steven Bankes proposed harnessing these computer capabilities not to solve the intractable problem of predicting the long-term future, but instead to

HOT IDEA Chili grown on 1 of about 300 sustainable farms supporting about 3,000 families in Panama, August 2003.

"Computers can help us identify particularly troublesome future scenarios that would 'break,' or defeat, a chosen near-term strategy."

ask a fundamentally different, more practical question: Given our present knowledge, too limited to permit credible predictions, how can we act today to best position ourselves for whatever the future may bring?

Computers could help us make the most of the future by indicating which near-term actions would probably perform well, compared with the alternatives, across myriad plausible future scenarios. The very range of hypothesized futures, broad enough that at least one of them would likely be sufficiently similar to the future that will unfold, provides a useful test for proposed strategies.

Computers can help us identify particularly troublesome future scenarios that would "break," or defeat, a chosen near-term strategy. After repeated iterations to shore up the strategic weaknesses thus revealed, the revised near-term strategy could then command a stronger consensus for action. One uniquely valuable component of this new strategy would be a set of signposts or benchmarks that could be used by policymakers to trigger hedging actions or other adaptations as updated information becomes available. Such a strategy would serve as a kind of navigation tool as we sail into the cloudy future.

In the end, the iterative computerized process could yield not merely "optimal" near-term strategies suited only to some single "best guess" scenario of the future, but rather "robust" near-term strategies that could perform reasonably well across a multitude of scenarios. Such a process could allow policymakers to escape the fruitless arguments among stakeholders concerning which future is "the" one for which we must prepare. Such a process could also prevent policymakers from preparing for a "best guess" scenario that ends up being a bad guess, such as the historical trend illustrated in Figure 8.

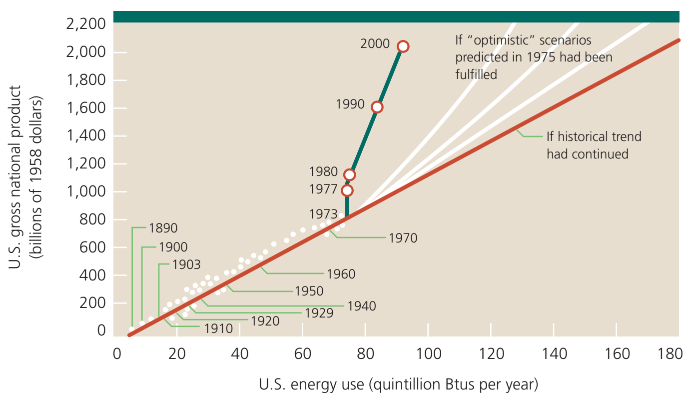
This robust decisionmaking approach combines some of the best features of the qualitative scenario-building and quantitative decisionmaking tools developed and applied at RAND for more than five decades. The result is a powerful enhancement of the human capacity to reason in the face of enormous uncertainty. These new computer tools may also help to unravel a paradox of decisionmaking in the face of uncertainty: Our greatest potential influence over the future may often reach precisely into those time horizons where our gaze is most dim.

This project was sponsored by the RAND Frederick S. Pardee Center for Longer Range Global Policy and the Future Human Condition. The Pardee Center aims to improve the ability of policymakers to think about the longer-range future—from 35 to 200 years ahead.

Shaping the Next One Hundred Years: New Methods for Quantitative, Long-Term Policy Analysis, 2003, Robert J. Lempert, Steven W. Popper, Steven C. Bankes, MR-1626-RPC.

FIGURE 8

Sudden Shift Toward Conservation in 1973 Undermined Even the Most Optimistic "Best Guesses" of Future Energy Use



SOURCES: *Energy in America's Future: The Choices Before Us*, Sam H. Schurr, Joel Darmstadter, Harry Perry, William Ramsay, Milton Russell, Baltimore, Md.: Resources for the Future, by the Johns Hopkins University Press, 1979, 584 pp.; U.S. Department of Energy, Energy Information Administration, Annual Energy Review.

Immigration
Beyond the First Generation

Latino immigrants to the United States advance socially, educationally, and economically from generation to generation just as quickly as European immigrants did decades before, according to RAND economist James Smith. These findings run counter to the pessimistic view that there is something holding Latinos back. The generational improvements characterize all Latinos in the aggregate as well as the numerically largest group of Latinos—those from Mexico.

Smith's findings, published in *The American Economic Review*, differ from those of other researchers not just because he looked at the progress of immigrants over a longer time period—the past 100 years—but mostly because he examined intergenerational progress. He tracked Latino progress over successive generations rather than taking a single snapshot of Latinos in any one year. The snapshot view incorrectly commingles Latinos of similar ages from multiple generations, thus obscuring the long-term

IN THE INN Children celebrate after a "Posada" Christmas procession depicting Mary and Joseph's quest for shelter, Los Angeles, California, December 1995.

> "The snapshot view incorrectly commingles Latinos of similar ages from multiple generations."

advancement from one generation to the next. When large numbers of immigrants continue to arrive decade after decade, the income and education gains become nearly invisible with only a snapshot view.

Smith compared Latino men not with peers of their own age group but with their forefathers of 25 and 50 years earlier. While his initial work examined only men, his subsequent work has identified similar generational progress among Latinas.

He found the average education gain across three generations of Mexican men to be more than seven years. Table 2 shows that Mexican immigrants who were born between 1905 and 1909 completed 4.3 years of school. Their American-born sons completed 9.3 years of school, and the grandsons were typically high school graduates. Table 3 shows that the youngest cohorts of grandsons (whose grandfathers were born between 1920 and 1924) had less than a one-year schooling gap relative to native-born white men—half as big as their fathers' schooling gap.

Table 4 shows that the wage gaps have also closed considerably. Mexican immigrants born between 1895 and 1899 earned 55 percent as much as native white men over their lifetimes. The American-born sons earned 77 percent as much, and the grandsons earned 84 percent as much.

Smith cautioned that much of the generational progress of immigrant groups has depended on the strong American school system. There is no guarantee that new immigrants will continue moving upward unless the United States continues to have a sound educational system.

"Assimilation Across the Latino Generations," *The American Economic Review*, Vol. 93, No. 2, May 2003, pp. 315–319, James P. Smith.

TABLE 2
Average Education Gain Across Three Generations of Mexican Men Has Been More Than Seven Years

	Years of Schooling Completed					
	All Latino Men			Mexican Men Only		
Year of Birth of Immigrants	1st Generation (Immigrants)	2nd Generation (Sons)	3rd Generation (Grandsons)	1st Generation (Immigrants)	2nd Generation (Sons)	3rd Generation (Grandsons)
1880–1884	3.12	5.65	9.55	2.67	5.08	9.17
1885–1889	3.62	6.22	10.05	2.79	5.66	9.75
1890–1894	4.98	7.55	10.89	4.56	7.04	10.47
1895–1899	4.68	8.13	11.74	3.80	7.47	11.61
1900–1904	4.55	7.75	12.08	3.81	7.37	12.40
1905–1909	5.06	9.59	12.24	4.27	9.27	12.17
1910–1914	6.10	10.56	12.13	5.02	10.30	12.13
1915–1919	7.41	11.17	12.47	6.20	10.93	12.45
1920–1924	7.91	11.80	12.40	6.22	11.61	12.29
1925–1929	8.28	12.28		5.96	12.04	
1930–1934	8.76	12.10		6.23	11.64	
1935–1939	8.40	12.50		6.15	12.26	
1940–1944	9.09	12.88		6.86	12.51	
1945–1949	9.56	12.42		7.79	12.08	
1950–1954	9.13			7.72		
1955–1959	9.47			8.23		
1960–1964	9.79			8.71		
1965–1969	9.90			9.30		
1970–1974	9.66			9.10		

TABLE 3
Youngest Cohorts of Grandsons Had Less Than a One-Year Schooling Gap Relative to Native-Born White Men

	Education Deficit Relative to Native-Born White Men					
	All Latino Men			Mexican Men Only		
Year of Birth of Immigrants	1st Generation (Immigrants)	2nd Generation (Sons)	3rd Generation (Grandsons)	1st Generation (Immigrants)	2nd Generation (Sons)	3rd Generation (Grandsons)
1880–1884	5.00	3.35	2.48	5.45	3.92	2.87
1885–1889	4.74	3.07	2.34	5.57	3.63	2.64
1890–1894	3.57	2.03	2.19	3.99	2.53	2.61
1895–1899	4.03	2.14	1.64	4.90	2.80	1.77
1900–1904	4.30	3.01	1.16	5.04	3.38	1.32
1905–1909	3.94	2.45	1.08	4.73	2.76	1.14
1910–1914	3.20	1.84	1.07	4.27	2.09	1.07
1915–1919	2.17	1.91	1.03	3.37	2.15	1.06
1920–1924	2.36	1.58	0.71	4.05	1.77	0.82

TABLE 4
Lifetime Earnings Gaps, Especially Among Mexican Men, Have Closed Considerably over Three Generations

	Lifetime Earnings as a Percentage of That of Native-Born White Men					
	All Latino Men			Mexican Men Only		
Year of Birth of Immigrants	1st Generation (Immigrants)	2nd Generation (Sons)	3rd Generation (Grandsons)	1st Generation (Immigrants)	2nd Generation (Sons)	3rd Generation (Grandsons)
1880–1884	55.53	71.50	78.65	41.59	63.14	77.82
1885–1889	52.93	70.26	78.74	39.98	68.70	77.63
1890–1894	71.81	74.58	77.41	64.72	74.24	73.32
1895–1899	60.51	76.25	81.88	54.54	76.81	83.80
1900–1904	74.14	78.47	79.11	70.19	75.09	74.38
1905–1909	75.11	79.17	82.96	67.43	80.06	78.79
1910–1914	69.70	82.85	80.17	65.32	81.15	79.17
1915–1919	70.92	82.34	84.77	65.84	83.78	83.15

SOURCE: "Assimilation Across the Latino Generations," *The American Economic Review*, May 2003.

Future Assessments of Health Care Quality

In the largest and most comprehensive examination ever conducted of health care quality in the United States, a team of RAND researchers led by Elizabeth McGlynn found that American adults fail to receive recommended health care about half the time. These deficiencies in care pose serious threats to the health of the American people and could contribute to thousands of preventable deaths in the United States each year. These findings, published in *The New England Journal of Medicine*, shattered the widely held perception that health care quality is not a problem in the United States.

The study demonstrated that it is possible to comprehensively assess whether health care delivery meets established standards. The study used a unique methodology that combined random telephone surveys with reviews of patients' medical records.

About 13,275 adults in 12 metropolitan areas were interviewed. About 7,000 of those interviewed then gave written consent for the researchers to review their medical records. The results are based on those adults who both were interviewed and provided access to medical records.

Based on the records, the researchers evaluated the quality of clinical performance on 439 detailed indicators of care for 30 common health problems—from asthma and diabetes to high blood pressure and heart disease. The researchers also evaluated the quality of preventive care. Quality varied substantially according to medical condition, ranging from the delivery of 79 percent of recommended care for cataracts among the elderly to the delivery of just 11 percent of recommended care for alcohol dependence among all adults (see Figure 9).

Elizabeth A. McGlynn

Elizabeth A. McGlynn is an associate director in RAND Health and director of the RAND Health Center for Research on the Quality of Health Care. McGlynn, a nationally recognized expert on the measurement of health care quality, led development of the QA Tools system and directed assessments at the national and community levels using this system. She has also led projects to assess the quality of managed care plans and medical groups using the QA Tools methodology; work is currently under way to explore its use for evaluating performance of individual physicians. She has headed dozens of major studies of health care quality and collaborated with both public- and private-sector organizations to analyze information on quality and report it in usable formats. She is a member of numerous advisory committees including those for the National Committee for Quality Assurance and the National Board of Medical Examiners. She also serves on the editorial boards for *Health Services Research* and *The Milbank Quarterly.*

MILES OF FILES 19th-century record-keeping for 21st-century medicine, Clarksville, Tennessee, October 2003.

> "Researchers evaluated the quality of clinical performance on 439 detailed indicators of care for 30 common health problems."

Most other quality studies have either assessed a single condition, focused on a small number of quality indicators, looked at care in one geographic area, or studied people with a single type of insurance. The RAND study covered a wide range of conditions, hundreds of quality indicators, all geographic areas, and all insurance types.

The kind of data compiled for this study is precisely the kind that needs to be made routinely available at every level in the health care system for the nation to make serious progress in improving quality of care. Making such information available will require a major overhaul of our current health information systems. We in America need to automate the entry and retrieval of key data for clinical decision-making, for measuring quality, and for reporting on quality. The methods developed here at RAND represent the gold standard for future assessments.

THE FUTURE IS AVAILABLE NOW Navy doctor with instant access to medical records, San Diego, California, February 2003.

"Keeping Quality on the Policy Agenda: How Many More People Have to Die Before We Accept That Quality Is Everyone's Problem?" *Health Affairs*, Vol. 20, No. 3, May/June 2001, pp. 82–90, Elizabeth McGlynn, Robert H. Brook.

Measuring General Practice: A Demonstration Project to Develop and Test a Set of Primary Care Clinical Quality Indicators, 2003, Martin N. Marshall, Martin O. Roland, Stephen M. Campbell, Sue Kirk, David Reeves, Robert H. Brook, Elizabeth A. McGlynn, Paul G. Shekelle, MR-1725.

"The Quality of Health Care Delivered to Adults in the United States," *New England Journal of Medicine*, Vol. 348, No. 26, June 26, 2003, pp. 2635–2645, Elizabeth A. McGlynn, Steven M. Asch, John Adams, Joan Keesey, Jennifer Hicks, Alison De Cristofaro, Eve A. Kerr.

"The Quality of Medical Care Provided to Vulnerable Community-Dwelling Older Patients," *Annals of Internal Medicine*, Vol. 139, No. 9, November 4, 2003, pp. 740–747, Neil S. Wenger, David H. Solomon, Carol P. Roth, Catherine H. MacLean, Debra Saliba, Caren J. Kamberg, Laurence Z. Rubenstein, Roy T. Young, Elizabeth M. Sloss, Rachel Louie, John Adams, John T. Chang, Patricia J. Venus, John F. Schnelle, Paul G. Shekelle.

FIGURE 9

Adherence to Quality Indicators, by Condition

Researchers reviewed all medical records for nearly 7,000 adults in 12 metropolitan areas to evaluate whether care met standards for 30 acute and chronic conditions, as well as preventive care. Below are scores for 25 of the conditions (those for which sufficient numbers of people were available for analysis).

SOURCE: "The Quality of Health Care Delivered to Adults in the United States," *New England Journal of Medicine*, June 26, 2003.

Early Signs of Hope for Victims of Violence

Children exposed to violence frequently develop post-traumatic stress symptoms. These children are more likely than others are to have behavioral problems, poor school performance, absences from school, and feelings of depression and anxiety. The symptoms could become long lasting. Fortunately, a RAND team has found reason to hope that the restorative benefits of a simple school-based program to help children traumatized by violence could also become long lasting.

Developed at RAND in close collaboration with school-based mental health clinicians from the Los Angeles Unified School District, the program involved ten group sessions. Students who had been exposed to multiple acts of violence were taught coping skills to help reduce their anxiety and sadness. In most cases, the students experienced less emotional distress as a result.

The 126 sixth-graders in the program attended one of two Los Angeles public middle schools in largely Latino neighborhoods. On average, the students had reported witnessing six violent events and being victims of three such events, which ranged from serious physical fights to being attacked with a knife or gun. The students were randomly assigned to two groups. One group took part in the ten weekly sessions, while the other was put on a waiting list for sessions later in the school year. Researchers then compared the changes among the students in the two groups.

Bradley Stein

Bradley Stein, a natural scientist at RAND, is Associate Director for Mental and Behavioral Health in the RAND Center for Domestic and International Health Security, and Assistant Professor of Child Psychiatry at the Keck School of Medicine, University of Southern California. Stein has been involved in the mental health response to several disasters—including the bombing in Oklahoma City and the crashes of TWA 800 and USAir 427—providing crisis intervention services and serving as a consultant to schools and to local and state governments. His major research interests combine child mental health services and efforts to improve the quality of mental health care in community settings. He is working collaboratively with the Los Angeles Unified School District's Mental Health Services Unit, other school stakeholders, and colleagues at UCLA in the continuing development and evaluation of a school-based mental health program for students exposed to violence.

Lisa Jaycox

Lisa Jaycox is a senior behavioral scientist and a clinical psychologist. Jaycox has combined clinical and research expertise in the area of child and adolescent mental health problems, especially related to depression and reactions to violence exposure such as post-traumatic stress disorder (PTSD). Jaycox has helped to develop and evaluate several mental health interventions based in community settings, including a depression prevention program for children in schools, an intensive treatment for PTSD for rape survivors in rape crisis clinics, a clinic-level intervention for teenage depression in primary care settings, and this recent work for children exposed to community violence in school settings. She also conducts research related to dating violence and mental health consequences of community violence.

LIGHT IN DARKNESS Children hear names of domestic violence victims read aloud in Lufkin, Texas, October 2003.

After three months, 86 percent of the students in the initial intervention had fewer symptoms of violence-related distress than would have been expected without the intervention, and 67 percent had fewer symptoms of depression. Nearly 78 percent of the parents reported that their child was functioning better than would have been expected without the intervention. The second group of students participating in the program showed improvements similar to those found among the first group. Moreover, after six months, students in the first group continued to experience less distress, and the parents continued to report improved functioning (see Figures 10 and 11).

The study, led by RAND researchers Bradley Stein and Lisa Jaycox, measured only short-term results. However, the program is designed to build resilience and coping skills, and so it is possible that the effect will be lasting. The RAND team hopes that their study, published in the *Journal of the American Medical Association*, will spur further studies designed to provide long-term help to victims of violence.

Cognitive-Behavioral Intervention for Trauma in Schools, 2003, Lisa Jaycox, Longmont, Colorado: Sopris West Educational Services.

"A Mental Health Intervention for Schoolchildren Exposed to Violence: A Randomized Clinical Trial," *Journal of the American Medical Association*, Vol. 290, No. 5, August 6, 2003, pp. 603–611, Bradley D. Stein, Lisa H. Jaycox, Sheryl H. Kataoka, Marleen Wong, Wenli Tu, Marc N. Elliott, Arlene Fink.

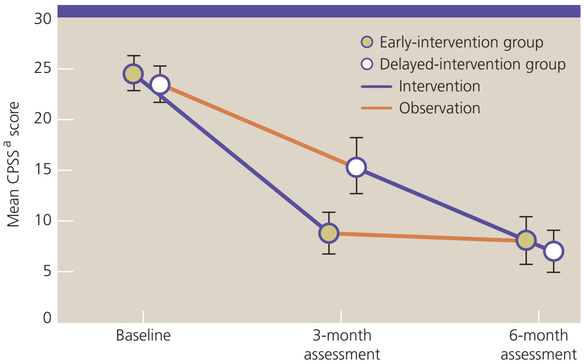
"A School-Based Mental Health Program for Traumatized Latino Immigrant Children," *Journal of the American Academy of Child & Adolescent Psychiatry*, Vol. 42, No. 3, March 2003, pp. 311–318, Sheryl Kataoka, Bradley D. Stein, Lisa H. Jaycox, Marleen Wong, Pia Escudero, Wenli Tu, Catalina Zaragoza, Arlene Fink.

"Theoretical Basis and Program Design of a School-Based Mental Health Intervention for Traumatized Immigrant Children: A Collaborative Research Model," *Journal of Behavioral Health Services and Research*, Vol. 29, No. 3, August 2002, pp. 318–326, Bradley D. Stein, Lisa H. Jaycox, Sheryl H. Kataoka, Marleen Wong, Arlene Fink, Pia Escudero, Catalina Zaragoza.

"Violence Exposure, Posttraumatic Stress Disorder, and Depressive Symptoms Among Recent Immigrant Schoolchildren," *Journal of the American Academy of Child & Adolescent Psychiatry*, Vol. 41, No. 9, September 2002, pp. 1104–1110, Lisa Jaycox, Bradley D. Stein, Sheryl H. Kataoka, Marleen Wong, Arlene Fink, Pia Escudero, Catalina Zaragoza.

FIGURE 10

Post-Traumatic Stress Symptoms Among Children at Baseline, Three Months, and Six Months

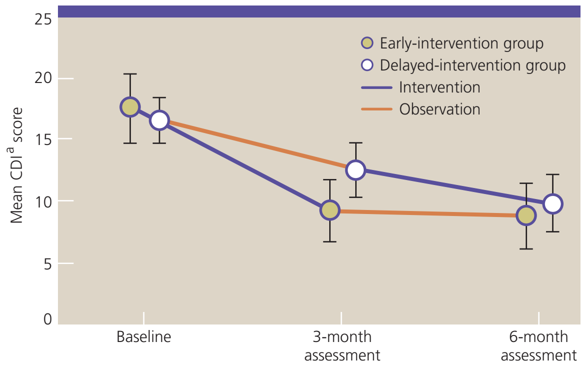


[a]CPSS = Child Post-Traumatic Stress Symptom

SOURCE: "A Mental Health Intervention for Schoolchildren Exposed to Violence," *Journal of the American Medical Association*, August 6, 2003.

FIGURE 11

Depressive Symptoms Among Children at Baseline, Three Months, and Six Months



[a]CDI = Child Depressive Inventory

SOURCE: "A Mental Health Intervention for Schoolchildren Exposed to Violence," *Journal of the American Medical Association*, August 6, 2003.

50 Years of Homework

Throughout the 20th century, public opinion has been volatile and contentious about a seemingly uncontroversial topic: homework. Historically, the debate has pitted those who think children have too much homework against those who think children have too little homework. Despite the continuous jousting, the data on the time that students spend on homework have remained remarkably stable over the decades.

RAND social scientist Brian Gill and Carnegie Mellon University historian Steven Schlossman reviewed major national surveys over the past 50 years to chart the trends. They found no "golden age" when American students toiled away at massive amounts of homework (see Figure 12). Except for a temporary spike in the amount of homework done during the post-Sputnik years, the trend has remained essentially flat. Today,

Brian Gill

Brian Gill is a social scientist who conducts research in education policy from RAND's Pittsburgh Office. His research focuses on parental choice in schooling, the implementation and scale-up of educational reforms, and homework. He is lead author of *Rhetoric vs. Reality: What We Know and What We Need to Know About Vouchers and Charter Schools* (2001). Brian was a member of the National Commission on Choice in K–12 Education at the Brookings Institution and is currently serving as senior adviser for school choice issues on the U.S. Department of Education's National Longitudinal Study of No Child Left Behind. He is coprincipal investigator in an ongoing RAND evaluation of Edison Schools, the nation's largest for-profit operator of public schools. Brian's award-winning research on homework with historian Steve Schlossman has been reported in major media outlets across the country.

STEADY AND POISED High school student works on her Japanese homework, Chapel Hill, North Carolina, September 2003.

only about one high school student in eight spends more than two hours a day on homework. In 1948, high school students were doing no more homework than they are today.

"The Lost Cause of Homework Reform," *American Journal of Education*, Vol. 109, No. 1, November 2000, pp. 27–62, Brian P. Gill, Steven L. Schlossman. Also available as RP-1039.

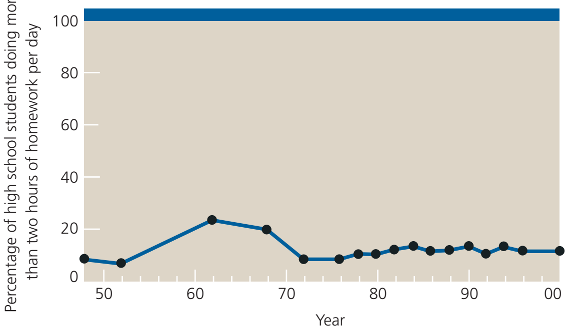
"A Nation at Rest: The American Way of Homework," *Educational Evaluation and Policy Analysis*, Vol. 25, No. 3, Fall 2003, pp. 319–337, Brian P. Gill, Steven L. Schlossman.

"Parents and the Politics of Homework: Some Historical Perspectives," *Teachers College Record*, Vol. 105, No. 5, June 2003, pp. 846–871, Brian P. Gill, Steven L. Schlossman.

"A Sin Against Childhood: Progressive Education and the Crusade to Abolish Homework, 1897–1941," *American Journal of Education*, Vol. 105, No. 1, November 1996, pp. 27–66, Brian P. Gill, Steven L. Schlossman. Also available as RP-1038.

FIGURE 12

Fifty Years of Homework



SOURCE: "A Nation at Rest: The American Way of Homework," *Educational Evaluation and Policy Analysis*, Fall 2003.

The Year in Review

CHILDREN AND ADOLESCENTS

SELECTED PUBLICATIONS

"Entertainment Television as a Health Sex Educator: The Impact of Condom-Efficacy Information in an Episode of *Friends*," *Pediatrics*, Vol. 112, No. 5, November 2003, pp. 1115–1121, R. L. Collins, M. N. Elliott, S. H. Berry, D. E. Kanouse, S. B. Hunter.

"Geographic Disparities in Children's Mental Health Care," *Pediatrics*, Vol. 112, No. 4, October 2003, pp. e308–e315, Roland Sturm, Jeanne S. Ringel, Tatiana Andreyeva.

"A Mental Health Intervention for Schoolchildren Exposed to Violence: A Randomized Clinical Trial," *Journal of the American Medical Association,* Vol. 290, No. 5, August 6, 2003, pp. 603–611, Bradley D. Stein, Lisa H. Jaycox, Sheryl Kataoka, Marleen Wong, Wenli Tu, Marc N. Elliott, Arlene Fink.

"Postpartum Length of Stay and Newborn Health: A Cost-Effectiveness Analysis," *Pediatrics*, Vol. 111, No. 4, April 2003, e316–e322, Jesse D. Malkin, Emmett Keeler, Michael S. Broder, Steven Garber.

"A School-Based Mental Health Program for Traumatized Latino Immigrant Children," *Journal of the American Academy of Child & Adolescent Psychiatry,* Vol. 42, No. 3, March 2003, pp. 311–318, Sheryl Kataoka, Bradley D. Stein, Lisa H. Jaycox, Marleen Wong, Pia Escudero, Wenli Tu, Catalina Zaragoza, Arlene Fink.

Statewide Evaluation of the CYSA/TANF Program: Final Report, Susan Turner, Lois M. Davis, Paul S. Steinberg, Terry Fain, MR-1730-CPOC.

2003 MILESTONES

RAND Health begins a major new initiative on reducing barriers to care for vulnerable children with asthma, funded by the Maternal and Child Health Bureau, Health Resources and Services Administration.

RAND Health receives a multi-million-dollar grant from Pfizer to help improve the treatment of adolescent mood and anxiety disorders.

CIVIL JUSTICE

SELECTED PUBLICATIONS

Adopting Medicare Fee Schedules: Considerations for the California Workers' Compensation Program, Barbara O. Wynn, MR-1776-ICJ.

"Debating Outpatient Commitment: Controversy, Trends, and Empirical Data," *Crime and Delinquency*, Vol. 49, No. 1, 2003, pp. 157–172, John Petrila, M. Susan Ridgely, Randy Borum.

"Enrollee Appeals of Preservice Coverage Denials at Two Health Maintenance Organizations," *Journal of the American Medical Association*, Vol. 289, No. 7, February 19, 2003, pp. 864–870, David M. Studdert, Carole R. Gresenz.

"Health Insurance Coverage Requests and Decisions: A Portrait of Utilization Management in Managed Care," *Health Affairs*, June 2003, Kanika Kapur, Carole Roan Gresenz, David Studdert.

Improving Dispute Resolution for California's Injured Workers: Executive Summary, Nicholas M. Pace, Robert T. Reville, Lionel Galway, Amanda B. Geller, Orla Hayden, Laural A. Hill, Christopher Mardesich, Frank W. Neuhauser, Suzanne Polich, Jane Yeom, Laura Zakaras, MR-1425/1-ICJ.

2003 MILESTONES

RAND's new Center for Terrorism Risk Management Policy is a collaboration of the RAND Institute for Civil Justice, RAND Public Safety and Justice, and Risk Management Solutions (RMS), the nation's leading provider of products and services for catastrophe risk management.

EDUCATION

SELECTED PUBLICATIONS

Charter School Operations and Performance: Evidence from California, Ron Zimmer, Richard Buddin, Derrick Chau, Brian Gill, Cassandra Guarino, Laura Hamilton, Cathy Krop, Dan McCaffrey, Melinda Sandler, Dominic Brewer, MR-1700-EDU.

"Counterfeit Social Capital and Mexican-American Underachievement," *Educational Evaluation and Policy Analysis*, Vol. 25, No. 3, pp. 237–262, R. K. Ream.

Evaluating Value-Added Models for Teacher Accountability, Daniel F. McCaffrey, J. R. Lockwood, Daniel M. Koretz, Laura S. Hamilton, MG-158-EDU.

"Improving Schools Through Networks: A New Approach to Urban School Reform," *Educational Policy*, Vol. 17, No. 4, pp. 399–430, P. Wohlstetter, C. M. Malloy, D. Chau, J. Polhemus.

Mathematical Proficiency for All Students: Toward a Strategic Research and Development Program in Mathematics Education, Deborah Loewenberg Ball, RAND Mathematics Study Panel, MR-1643-OERI.

"Methodological Thoughts on Measuring the Impact of Private Sector Competition on the Educational Marketplace," *Educational Evaluation and Policy Analysis*, Vol. 25, No. 2, pp. 217–232, D. Goldhaber, E. Eide.

"A Nation at Rest: The American Way of Homework," *Educational Evaluation and Policy Analysis,* Vol. 25, No. 3, Fall 2003, pp. 319–337, Brian P. Gill, Steven L. Schlossman.

"A New Twist in the Educational Tracking Debate," *Economics of Education Review*, Vol. 22, No. 3, June 2003, Ron Zimmer.

"Parents and the Politics of Homework: Some Historical Perspectives," *Teachers College Record,* Vol. 105, No. 5, June 2003, pp. 846–871, Brian P. Gill, Steven L. Schlossman.

RAND's mission calls for us to communicate our research to key decisionmakers and the public. Each year, in addition to numerous briefings and other research products, we publish hundreds of books, reports, and articles to enrich and shape the public debate about major issues of importance. Regular updates on our projects and results are posted at www.rand.org.

Below we list highlights of our outreach this year.

Quaker Valley Digital School District: Early Effects and Plans for Future Evaluation, Kerri A. Kerr, John F. Pane, Heather Barney, TR-107-EDU.

A Snapshot of Title I Schools, 2000–01, Sheila Kirby, Jennifer McCombs, Scott Naftel, Sheila Murray, U.S. Department of Education.

A Snapshot of Title I Schools Serving Migrant Students, 2000–01, Sheila Kirby, Jennifer McCombs, Scott Naftel, U.S. Department of Education.

A Strategic Governance Review for Multi-organizational Systems of Education, Training, and Professional Development, Glenn A. Daley, Dina G. Levy, Tessa Kaganoff, Catherine A. Augustine, Roger Benjamin, Tora K. Bikson, Susan M. Gates, Joy S. Moini, MR-1560-OSD.

"Teaching Practices and Student Achievement: Evaluating Classroom-Based Education Reforms," *Educational Evaluation and Policy Analysis*, Vol. 25, No. 1, pp. 1–30, L. S. Hamilton, D. F. McCaffrey, S. P. Klein, B. M. Stecher, A. Robyn, D. Bugliari.

Voluntary Support of Education (VSE) 2002, Council for Aid to Education.

Who Is Leading Our Schools? An Overview of School Administrators and Their Careers, Susan M. Gates, Jeanne S. Ringel, Lucrecia Santibañez, Karen E. Ross, Catherine H. Chung, MR-1679-EDU.

Working Smarter to Leave No Child Behind: Practical Insights for School Leaders, Brian Stecher, Laura Hamilton, Gabriella Gonzalez, WP-138-EDU.

2003 MILESTONES

RAND Education's analysis of the Qatar educational system now includes an evaluation of the postsecondary scholarship system.

The RAND Council for Aid to Education receives a grant to provide its Collegiate Learning Assessment service to a consortium of 20 minority-serving institutions.

The RAND Arroyo Center and the U.S. Army design a new recruiting program called College First and then formulate and conduct a nationwide test of the program's effectiveness.

ENERGY AND ENVIRONMENT

SELECTED PUBLICATIONS

Assessing Natural Gas and Oil Resources: An Example of a New Approach in the Greater Green River Basin, Tom LaTourrette, Mark Bernstein, Mark Hanson, Christopher Pernin, Debra Knopman, Adrian Overton, MR-1683-WFHF.

Industrial Materials for the Future R&D Strategies: A Case Study of Boiler Materials for the Pulp and Paper Industry, David Howell, Richard Silberglitt, Douglas Norland, MR-1583-NREL.

State-Level Changes in Energy Intensity and Their National Implications, Mark Bernstein, Kateryna Fonkych, Sam Loeb, David Loughran, MR-1616-DOE.

HEALTH AND HEALTH CARE

SELECTED PUBLICATIONS

An Analysis of Potential Adjustments to the Veterans Equitable Resource Allocation (VERA) System, Jeffrey Wasserman, Jeanne Ringel, Karen Ricci, Jesse Malkin, Michael Schoenbaum, Barbara Wynn, Jack Zwanziger, Sydne Newberry, Marika Suttorp, Afshin Rastegar, MR-1629-DVA.

"Cryopreserved Embryos in the United States and Their Availability for Research," *Fertility and Sterility*, Vol. 79, No. 5, pp. 1063–1069, May 2003, D. I. Hoffman, G. L. Zellman, C. C. Fair, J. F. Mayer, J. G. Zeitz, W. E. Gibbons, T. G. Turner.

"Efficacy and Safety of Ephedra and Ephedrine for Weight Loss and Athletic Performance: A Meta-Analysis," *Journal of the American Medical Association*, Vol. 289, No. 12, March 26, 2003, pp. 1537–1545, P. G. Shekelle, M. L. Hardy, S. C. Morton, M. Maglione, W. A. Mojica, M. J. Suttorp, S. L. Rhodes, L. Jungvig, J. Gagne.

"Enrollee Appeals of Preservice Coverage Denials at Two Health Maintenance Organizations," *Journal of the American Medical Association*, Vol. 289, No. 7, February 19, 2003, pp. 864–870, D. M. Studdert, C. R. Gresenz.

Financing Health Care for Women with Disabilities, Janice Blanchard, Susan Hosek, WP-139.

The Global Threat of New and Reemerging Infectious Diseases: Reconciling U.S. National Security and Public Health Policy, Jennifer Brower, Peter Chalk, MR-1602-RC.

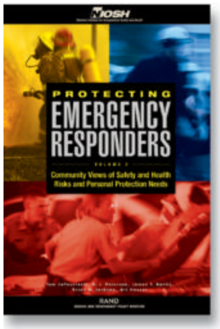
Governance for Whom and for What: Principles to Guide Health Policy in Miami-Dade County, Catherine A. Jackson, Kathryn Pitkin Derose, Amanda Beatty, MR-1703-CH.

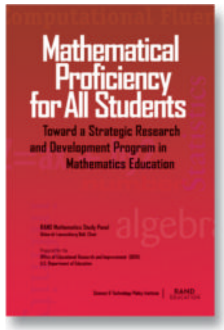
"High Out-of-Pocket Health Care Spending by the Elderly," *Health Affairs*, Vol. 22, No. 3, May/June 2003, pp. 194–202, D. P. Goldman, J. M. Zissimopoulos.

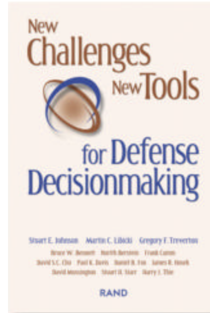
"Increases in Clinically Severe Obesity in the United States, 1986–2000," *Archives of Internal Medicine*, Vol. 163, No. 18, October 13, 2003, pp. 2146–2148, R. Sturm.

"Incremental Treatment Costs in National Cancer Institute–Sponsored Clinical Trials," *Journal of the American Medical Association*, Vol. 289, No. 22, June 11, 2003, pp. 2970–2977, D. P. Goldman, S. H. Berry, M. S. McCabe, M. L. Kilgore, A. L. Potosky, M. L. Schoenbaum, M. Schonlau, J. C. Weeks, R. Kaplan, J. J. Escarce.

Living Well at the End of Life: Adapting Health Care to Serious Chronic Illness in Old Age, Joanne Lynn, David M. Adamson, WP-137.







"A Model for a Smallpox-Vaccination Policy," *New England Journal of Medicine*, Vol. 348, No. 5, January 30, 2003, pp. 416–425, S. A. Bozzette, R. Boer, V. Bhatnagar, J. L. Brower, E. B. Keeler, S. C. Morton, M. A. Stoto.

"Participation of Patients 65 Years of Age or Older in Cancer Clinical Trials," *Journal of Clinical Oncology*, Vol. 21, No. 7, April 1, 2003, pp. 1383–1389, J. H. Lewis, M. L. Kilgore, D. P. Goldman, E. L. Trimble, R. Kaplan, M. J. Montello, M. G. Housman, J. J. Escarce.

Preventing Venous Thromboembolism: Prophylactic Options for Patients at Different Risk Levels, James P. Kahan, Marleen Cornelis, Han de Vries, Ineke van Beusekom, Vincent Wietlisbach, MR-1689-EVIDIS/SANOFI.

"Public Insurance Expansions and Crowd Out of Private Coverage," *Medical Care*, Vol. 41, No. 3, March 2003, pp. 344–356, M. S. Marquis, S. H. Long.

"The Quality of Health Care Delivered to Adults in the United States," *New England Journal of Medicine,* Vol. 348, No. 26, June 26, 2003, pp. 2635–2645, Elizabeth A. McGlynn, Steven M. Asch, John Adams, Joan Keesey, Jennifer Hicks, Alison De Cristofaro, Eve A. Kerr.

"The Quality of Medical Care Provided to Vulnerable Community-Dwelling Older Patients," *Annals of Internal Medicine,* Vol. 139, No. 9, November 4, 2003, pp. 740–747, Neil S. Wenger, David H. Solomon, Carol P. Roth, Catherine H. MacLean, Debra Saliba, Caren J. Kamberg, Laurence Z. Rubenstein, Roy T. Young, Elizabeth M. Sloss, Rachel Louie, John Adams, John T. Chang, Patricia J. Venus, John F. Schnelle, Paul G. Shekelle.

"Shortcomings in Medicare Bonus Payments for Physicians in Underserved Areas," *Health Affairs*, Vol. 22, No. 4, July/August 2003, pp. 173–178, L. R. Shugarman, D. O. Farley.

"Spinal Manipulative Therapy for Low Back Pain: A Meta-Analysis of Effectiveness Relative to Other Therapies," *Annals of Internal Medicine*, Vol. 138, No. 11, June 2, 2003, pp. 871–881, E888–E900, W.J.J. Assendelft, S. C. Morton, E. I. Yu, M. J. Suttorp, P. G. Shekelle.

2003 MILESTONES

The National Institute on Environmental Health Services funds a new RAND Health center on understanding neighborhood impacts on health.

The Department of Health and Human Services funds a RAND Health evaluation of public health preparedness.

INTERNATIONAL AFFAIRS

SELECTED PUBLICATIONS

Fault Lines in China's Economic Terrain, Charles Wolf, Jr., K. C. Yeh, Benjamin Zycher, Nicholas Eberstadt, Sung-Ho Lee, MR-1686-NA/SRF.

Faultlines of Conflict in Central Asia and the South Caucasus: Implications for the U.S. Army, Olga Oliker, Thomas S. Szayna, MR-1598-A.

The Information Revolution in Asia, Nina Hachigian, Lily Wu, MR-1719-NIC.

The Information Revolution in the Middle East and North Africa, Grey E. Burkhart, Susan Older, MR-1653-NIC.

New Challenges for International Leadership: Lessons from Organizations with Global Missions, Tora K. Bikson, Gregory F. Treverton, Joy Moini, Gustav Lindstrom, MR-1670-IP.

Sunshine in Korea: The South Korean Debate over Policies Toward North Korea, Norman D. Levin, Yong-Sup Han, MR-1555-CAPP.

Turkish Foreign Policy in an Age of Uncertainty, F. Stephen Larrabee, Ian O. Lesser, MR-1612-CMEPP.

2003 MILESTONES

The Initiative on Middle East Youth (IMEY) is launched, headed by Cheryl Bernard.

The RAND Center for Asia Pacific Policy convened a conference on "Democracy and Islam in the New Constitution of Afghanistan." The documentation from that conference is used in drafting the Afghan constitution.

POPULATION AND AGING

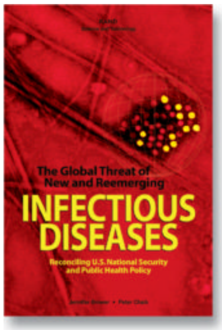
SELECTED PUBLICATIONS

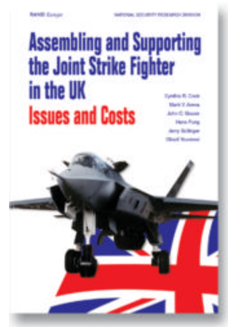
"Assimilation Across the Latino Generations," *American Economic Review*, Vol. 93, No. 2, pp. 315–319, May 2003, James P. Smith.

The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change, David E. Bloom, David Canning, Jaypee Sevilla, MR-1274-WFHF/DLPF/RF/UNPF.

"Economic Shocks, Wealth, and Welfare," *Journal of Human Resources*, Vol. 38, No. 2, 2003, Elizabeth Frankenberg, James P. Smith, Duncan Thomas.

"Forecasting the Nursing Home Population," *Medical Care,* Vol. 41, No. 1, pp. 8–20, 2003, Darius Lakdawalla, Jayanta Bhattacharya, Dana P. Goldman, Michael Hurd, Geoffrey Joyce, Constantijn W. A. Panis.





"Health, Wealth, and the Role of Institution," *Journal of Human Resources*, 2003, pp. 386–415, Michael Hurd, Arie Kapteyn.

"Healthy, Wealthy and Wise? Tests for Direct Causal Paths Between Health and Socio-economic Status," *Journal of Econometrics*, Vol. 112, No. 1, 2003, pp. 3–56, Michael Hurd, Peter Adams, Daniel McFadden, Angela Merrill, Tiago Ribeiro.

"Introduction to the *JHR*'s Special Issue on Cross-National Comparative Research Using Panel Surveys," *Journal of Human Resources*, Vol. 38, No. 2, 2003, James P. Smith, Frank Stafford, James Walker.

The Labor Market for Attorneys in the State of California: Past, Present, and Future, Tora Kay Bikson, Megan Beckett, Susan Gates, Cassandra Guarino, Karen Ross, Ron Zimmer, MR-1710-UC.

"Leaving Bequests: By Accident or by Design?" in *Death and Dollars*, Michael Hurd, Alicia Munnell, Anika Sunden, eds., Washington, D.C.: The Brookings Institution Press, pp. 93–118, 2003.

"The Relationship Between the Economy and the Welfare Caseload: A Dynamic Approach," *Research in Labor Economics*, 2003, pp. 36–39, S. J. Haider, J. A. Klerman, E. Roth.

"Social Security Claiming and Pension Annuitization," in Elsa Fornero (ed.), *Developing an Annuity Market in Europe*, Edward Elgar, April 2003, James Smith, Michael Hurd, Stan Panis, Julie M. Zissimopoulos.

"Some Evidence on Race, Welfare Reform, and Household Income," *American Economic Review Papers and Proceedings,* Vol. 93, 2003, pp. 293–298, M. P. Bitler, J. B. Gelbach, H. W. Hoynes.

"Trends and Projections in Income Replacement During Retirement," *Journal of Labor Economics*, Vol. 21, No. 4, October 2003, James Smith.

"Understanding Differences in Household Financial Wealth Between the United States and Great Britain," *Journal of Human Resources*, Vol. 38, No. 2, 2003, James Banks, Richard Blundell, James P. Smith.

Welfare Reform in California: Early Results from the Impact Analysis, Jacob Alex Klerman, V. Joseph Hotz, Elaine Reardon, Amy G. Cox, Donna O. Farley, Steven J. Haider, Guido Imbens, Robert Schoeni, MR-1358-CDSS.

Welfare Reform in California: Early Results from the Impact Analysis—Executive Summary, Jacob Alex Klerman, Elaine Reardon, Paul Steinberg, MR-1358/1-CDSS.

2003 MILESTONES

The National Institute on Aging funds a new research initiative on neighborhoods and the health of elderly Americans.

PUBLIC SAFETY

SELECTED PUBLICATIONS

Protecting Emergency Responders Volume 2: Community Views of Safety and Health Risks and Personal Protection Needs, Tom LaTourrette, D. J. Peterson, James T. Bartis, Brian A. Jackson, Ari Houser, MR-1646-NIOSH.

Reducing Gun Violence: Results from an Intervention in East Los Angeles, George Tita, K. Jack Riley, Greg Ridgeway, Clifford Grammich, Allan F. Abrahamse, Peter W. Greenwood, MR-1764-NIJ.

Training the 21st Century Police Officer: Redefining Police Professionalism for the Los Angeles Police Department, Russell W. Glenn, Barbara R. Panitch, Dionne Barnes-Proby, Elizabeth Williams, John Christian, Matthew W. Lewis, Scott Gerwehr, David W. Brannan, MR-1745-LAPD.

2003 MILESTONES

The Criminal Justice unit is renamed RAND Public Safety and Justice to better reflect its changing research agenda.

The Memorial Institute for the Prevention of Terrorism renewed funding to support the RAND Chronology of Terrorism.

SCIENCE AND TECHNOLOGY

SELECTED PUBLICATIONS

Alternatives for Landmine Detection, Jacqueline MacDonald et al., MR-1608-OSTP.

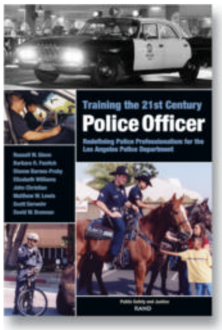
Assessing Federal Research and Development for Hazard Loss Reduction, Charles Meade, Megan Abbott, MR-1734-OSTP.

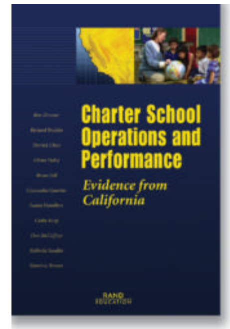
Benchmarking e-Government in Europe and the US, Irma Graafland-Essers, Emile Ettedgui, MR-1733-EC.

Case Studies of Existing Human Tissue Repositories: "Best Practices" for a Biospecimen Resource for the Genomic and Proteomic Era, Elisa Eiseman, Gabrielle Bloom, Jennifer Brower, Noreen Clancy, Stuart S. Olmsted, MG-120-NDC/NCI.

Effective Use of Information Technology: Lessons about State Governance Structures and Processes, Robert Anderson, Tora K. Bikson, Rosalind Lewis, Joy Moini, Susan Straus, MR-1704-BSA.

The Global Course of the Information Revolution: Recurring Themes and Regional Variations, Richard O. Hundley, Robert H. Anderson, Tora K. Bikson, C. Richard Neu, MR-1680-NIC.





Managing New Issues: Cyber Security in an Era of Technological Change, Marten van Heuven, Maarten Botterman, Stephan de Spiegeleire, MR-1535-RE.

New Forces at Work in Refining: Industry Views of Critical Business and Operations Trends, D. J. Peterson, Sergej Mahnovski, MR-1707-NETL.

Next Generation Environmental Technologies: Benefits and Barriers, Robert J. Lempert, Parry Norling, Christopher Pernin, Susan Resetar, Sergej Mahnovski, MR-1682-OSTP.

SUBSTANCE ABUSE

SELECTED PUBLICATIONS

"New Inroads in Preventing Adolescent Drug Use: Results from a Large-Scale Trial of Project ALERT in Middle Schools," *American Journal of Public Health*, Vol. 93, No. 11, November 2003, pp. 1830–1836, P. L. Ellickson, D. F. McCaffrey, B. Ghosh-Dastidar, D. L. Longshore.

"Patterns and Correlates of Binge Drinking Trajectories from Early Adolescence to Young Adulthood," *Health Psychology*, Vol. 22, No. 1, 2003, pp. 79–87, J. S. Tucker, M. Orlando, P. L. Ellickson.

"Ten-Year Prospective Study of Public Health Problems Associated with Early Drinking," *Pediatrics*, Vol. 111, No. 5, May 2003, pp. 949–955, P. L. Ellickson, J. S. Tucker, D. J. Klein.

2003 MILESTONES

National Institute on Drug Abuse is funding two major initiatives in RAND Health. One is a coordinating center to examine the sexual transmission of HIV in drug-using populations; and the other is a study on the long-term effects of ALERT plus, a curriculum designed to prevent use of alcohol, tobacco, and other drugs by teenagers.

TERRORISM AND HOMELAND SECURITY

SELECTED PUBLICATIONS

Arms Trafficking and Colombia, Kim Cragin, Bruce Hoffman, MR-1468-DIA.

The Counterterror Coalitions: Cooperation with Europe, NATO, and the European Union, Nora Bensahel, MR-1746-AF.

Individual Preparedness and Response to Chemical, Radiological, Nuclear, and Biological Terrorist Attacks, Lynn E. Davis, Tom LaTourrette, David E. Mosher, Lois M. Davis, David R. Howell, MR-1731-SF.

Individual Preparedness and Response to Chemical, Radiological, Nuclear, and Biological Terrorist Attacks: A Quick Guide, Lynn E. Davis, Tom LaTourrette, David E. Mosher, Lois M. Davis, David R. Howell, MR-1731/1-SF.

Individual Preparedness and Response to Chemical, Radiological, Nuclear, and Biological Terrorist Attacks: The Reference Guide, Lynn E. Davis, Tom LaTourrette, MR-1731/2-SF.

Military Operations Against Terrorist Groups Abroad: Implications for the United States Air Force, David Ochmanek, MR-1738-AF.

A Preliminary Benefit/Cost Framework for Counterterrorism Public Expenditures, Benjamin Zycher, MR-1693-RC.

Terrorism and Development: Using Social and Economic Development to Inhibit a Resurgence of Terrorism, Kim Cragin, Peter Chalk, MR-1630-RC.

2003 MILESTONES

The Homeland Security Center, headed by Jack Riley, is established within the RAND National Security Research Division.

A team led by Bernie Rostker and Michael Wermuth provide the analytical basis for developing the National Response Plan and National Integrated Management System called for by Homeland Security Presidential Directive-5.

The National Defense Research Institute continues to provide analytical support to the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, chaired by former Virginia governor James Gilmore, in the panel's final year of a five-year term.

TRANSPORTATION AND INFRASTRUCTURE

SELECTED PUBLICATIONS

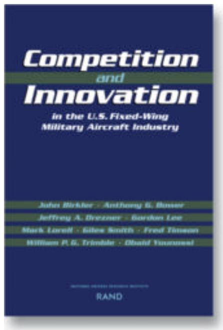
Analyse conjointe SP/RP du choix du mode de transport de marchandises dans la Région Nord—Pas-de-Calais (A Simultaneous SP/RP Analysis of Mode Choice in Freight Transport in the Region Nord—Pas-de-Calais), Carine Vellay, Gerald de Jong, MR-1435-MELTT.

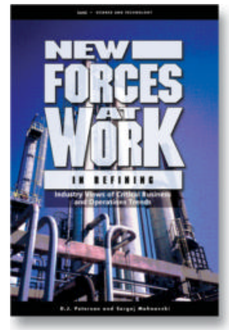
Benchmarking Security and Trust in Europe and the US, Leon Cremonini, Lorenzo Valeri, MR-1736-EC.

Enabling the Information Society by Stimulating the Creation of a Broadband Environment in Europe: Analyses of Evolution Scenarios for Future Networking Technologies and Networks in Europe, Maarten Botterman, Robert H. Anderson, Paul van Binst, Jonathan Cave, Martin Libicki, Andreas Ligtvoet, Robbin te Velde, Gert Jan de Vries, MR-1579-EC.

EXPEDITE: EXpert-System Based PrEdictions of Demand for Internal Transport in Europe, The EXPEDITE Consortium, G. C. de Jong et al., MR-1673-DGTREN.

Getting the Evidence: Using Research in Policy Making, Jonathan Grant, UK National Audit Office Report, London, 2003.





An International Review of Governments' Research Procurement Strategies, Erik Frinking, UK National Audit Office Report, London, 2003.

"Seacurity": Improving the Security of the Global Sea-Container Shipping System, Maarten van de Voort, Kevin A. O'Brien, MR-1695-JRC.

Shaping the Next One Hundred Years: New Methods for Quantitative, Long-Term Policy Analysis, Robert J. Lempert, Steven W. Popper, Steven C. Bankes, MR-1626-RPC.

Strategic Assessment and Development of Interorganizational Influence in the Absence of Hierarchical Authority, Catherine H. Augustine, Dina G. Levy, Roger W. Benjamin, Tora K. Bikson, Glenn A. Daley, Susan M. Gates, Tessa Kaganoff, Joy S. Moini, MR-1561-OSD.

TEN Telecom Guidelines Status Review, Jonathan Cave, Maarten Botterman, Renske Ellens, Paivi Luoma, Gert Jan de Vries, Roel Westerhof, MR-1485-EC.

2003 MILESTONES

RAND Europe wins a contract to provide analytic support to the United Kingdom's Ministry of Defence as it pursues its aircraft carrier acquisition program.

A project within RAND Science and Technology examines ways of assessing the impact of fragmented governance in Allegheny County, Pennsylvania, and identifies potential lessons from other regions' experiences with aligning governance structures and development goals.

U.S. NATIONAL SECURITY

SELECTED PUBLICATIONS

Aft and Fore: A Retrospective and Prospective Analysis of Navy Officer Management, Harry J. Thie, Margaret C. Harrell, Jefferson P. Marquis, Kevin Brancato, Roland J. Yardley, Clifford M. Graf II, Jerry Sollinger, MR-1479-NAVY.

Aging Aircraft: USAF Workload and Material Consumption Life Cycle Patterns, Raymond A. Pyles, MR-1641-AF.

America's Role in Nation-Building: From Germany to Iraq, James Dobbins, John G. McGinn, Keith Crane, Seth G. Jones, Rollie Lal, Andrew Rathmell, Rachel Swanger, Anga Timilsina, MR-1753-RC.

Assembling and Supporting the Joint Strike Fighter in the UK: Issues and Costs, Cynthia R. Cook, Mark V. Arena, John C. Graser, Hans Pung, Jerry Sollinger, Obaid Younossi, MR-1771-MOD.

Attracting "Cutting-Edge" Skills Through Reserve Component Participation, Gregory F. Treverton, David Oaks, Lynn Scott, Justin L. Adams, MR-1729-OSD.

Background and Theory Behind the Compensation, Accessions, and Personnel Management (CAPM) Model, John Ausink, Jonathan Cave, Manuel Carrillo, MR-1667-AF/OSD.

Beyond the Nuclear Shadow: A Phased Approach for Improving Nuclear Safety and U.S.-Russian Relations, David E. Mosher, Lowell H. Schwartz, David R. Howell, Lynn E. Davis, MR-1666-NSRD.

Challenges in Defense Working Capital Fund Pricing: Analysis of the Defense Finance and Accounting Service, Edward G. Keating, Susan M. Gates, Christopher Paul, Aimee Bower, Leah Brooks, Jennifer E. Pace, MR-1597-DFAS.

Competition and Innovation in the U.S. Fixed-Wing Military Aircraft Industry, John Birkler, Anthony G. Bower, Jeffrey A. Drezner, Gordon Lee, Mark Lorell, Giles Smith, Fred Timson, William P.G. Trimble, Obaid Younossi, MR-1656-OSD.

The Dynamics of Growth in Worldwide Satellite Communications Capacity, Michael G. Mattock, MR-1613-AF.

Effective Treatment of Logistics Resource Issues in the Air Force Planning, Programming, and Budgeting System (PPBS) Process, Frank Camm, Leslie Lewis, MR-1611-AF.

Equipment Sustainment Requirements for the Transforming Army, Eric Peltz, MR-1577-A.

A Framework for Modernization Within the United States Air Force, Glenn A. Kent, David A. Ochmanek, MR-1706-AF.

Going to the Mines to Look for Diamonds: Experimenting with Military Recruiting Stations in Malls, Ronald D. Fricker, Jr., C. Christine Fair, MR-1697-OSD.

Honing the Keys to the City: Refining the United States Marine Corps Reconnaissance Force for Urban Ground Combat Operations, Russell W. Glenn, Jamison Jo Medby, Scott Gerwehr, Fred Gellert, Andrew O'Donnell, MR-1628-USMC.

Impact of a Uniform Formulary on Military Health System Prescribers: Baseline Survey Results, Terri Tanielian, Katherine Harris, Ana Suárez, Renée Labor, Melissa Bradley, Sidney Atkinson, Peter Glassman, MR-1615-OSD.

Implications for Model Validation of Multiresolution, Multiperspective Modeling (MRMPM) and Exploratory Analysis, James H. Bigelow, Paul K. Davis, MR-1750-AF.

Is Military Advertising Effective? An Estimation Methodology and Applications to Recruiting in the 1980s and '90s, James N. Dertouzos, Steven Garber, MR-1591-OSD.

Learning About Quality: How the Quality of Military Personnel Is Revealed Over Time, James R. Hosek, Michael G. Mattock, MR-1593-OSD.

Mastering the Ultimate High Ground: Next Steps in the Military Uses of Space, Benjamin S. Lambeth, MR-1649-AF.

Military Jet Engine Acquisition: Technology Basics and Cost-Estimating Methodology, Obaid Younossi, Mark V. Arena, Richard M. Moore, Mark Lorell, Joanna Mason, John C. Graser, MR-1596-AF.

Models of Operational Training in Fighter Squadrons, James H. Bigelow, William W. Taylor, S. Craig Moore, Brent Thomas, MR-1701-AF.

Motivated Metamodels: Synthesis of Cause-Effect Reasoning and Statistical Metamodeling, Paul K. Davis, James H. Bigelow, MR-1570-AF.

New Challenges, New Tools for Defense Decisionmaking, Stuart E. Johnson, Martin C. Libicki, Gregory F. Treverton, et al., MR-1576-RC.

Office Sabbaticals: Analysis of Extended Leave Options, Harry J. Thie, Margaret C. Harrell, Marc Thibault, MR-1752-OSD.

Optimal Commercial Satellite Leasing Strategies, Michael G. Mattock, MR-1402-AF.

The Peacetime Tempo of Air Mobility Operations: Meeting Demand and Maintaining Readiness, Brian G. Chow, MR-1506-AF.

Reconfiguring Footprint to Speed Expeditionary Aerospace Forces Deployment, Lionel A. Galway, Mahyar A. Amouzegar, Richard J. Hillestad, Don Snyder, MR-1625-AF.

Recruiting Youth in the College Market: Current Practices and Future Policy Options, M. Rebecca Kilburn, Beth J. Asch, MR-1093-OSD.

Rethinking Governance of the Army's Arsenals and Ammunition Plants, W. Michael Hix, Ellen M. Pint, John R. Bondanella, Bruce Held, Michael V. Hynes, David Johnson, Art Pregler, Mike Stollenwerk, Jerry Sollinger, MR-1651-A.

Speed and Power: Toward an Expeditionary Army, Eric Peltz, John M. Halliday, Aimee Bower, MR-1755-A.

Supporting Expeditionary Aerospace Forces: Engine Maintenance Systems Evaluation (EnMasse)—A User's Guide, Mahyar A. Amouzegar, Lionel A. Galway, MR-1614-AF.

Supporting Expeditionary Aerospace Forces: An Operational Architecture for Combat Support Execution Planning and Control, James Leftwich, Robert Tripp, Amanda Geller, Patrick Mills, Tom LaTourrette, C. Robert Roll, Jr., Cauley Von Hoffman, David Johansen, MR-1536-AF.

The U.S. Army and the New National Security Strategy, Lynn E. Davis, Jeremy Shapiro, eds., MR-1657-A.

The U.S. Combat Aircraft Industry, 1909–2000: Structure, Competition, Innovation, Mark Lorell, MR-1696-OSD.

Use of Simulation for Training in the U.S. Navy Surface Force, Roland J. Yardley, Harry J. Thie, John F. Schank, Jolene Galegher, Jessie L. Riposo, MR-1770-NAVY.

Vertical Envelopment and the Future Transport Rotorcraft: Operational Considerations for the Objective Force, Jon Grossman, David Rubenson, William Sollfrey, Brett Steele, MR-1713-A.

2003 MILESTONES

All military services (U.S. Air Force, U.S. Army, Chief of Naval Operations, and the Commandant of the Marine Corps) adopt a new approach to managing senior leadership developed by RAND Project AIR FORCE, the RAND Arroyo Center, and the RAND National Defense Research Institute.

As part of RAND's effort to improve policy and decisionmaking through research and analysis, RAND research staff present their findings to a wide range of government and private audiences through briefings, testimony, and speeches. Here is a list of select briefings and testimony presented over the past year.

Selected 2003 Briefings

Topic	Audience	Briefer
Beyond the Nuclear Shadow: A Phased Approach for Improving Nuclear Safety and U.S.-Russia Nuclear Relations	U.S. House and Senate staff	David Mosher
Demographic Trends in the Middle East and Their Implications for U.S. Security Policy	U.S. House and Senate staff	Brian Nichiporuk
An Effective Mental Health Program for School Children Exposed to Violence	U.S. House and Senate staff	Bradley Stein
Gaps in the Armor: Three Emerging Homeland Security Challenges for California	Annenberg California Congressional Retreat	Jack Riley
How Do Drug Benefits Affect Drug Use and Costs?	U.S. House and Senate staff	Geoffrey Joyce
Improving Asthma Outcomes for Latino Children and Their Families	U.S. House and Senate staff	Marielena Lara
Individual Preparedness and Response to Chemical, Radiological, Nuclear, and Biological Terrorist Attacks	U.S. House and Senate staff	Lynn Davis
Man-Portable Air Defense Systems (MANPADS)	Congressional Research Service, Senate Governmental Affairs Committee, Senate Armed Services Committee	Jim Chow
Next Steps in Iraq and Beyond	Members of U.S. Congress and U.S. House and Senate staff	James Dobbins
Protecting Emergency Responders	U.S. House and Senate staff	Tom LaTourrette
Smallpox Vaccination Policy	Members of U.S. Congress and U.S. House and Senate staff	Sam Bozzette

Selected 2003 Formal Testimony

Topic	Audience	Briefer
Assessing Natural Gas and Oil Resources	U.S. House Committee on Resources Subcommittee on Energy and Mineral Resources	Debra Knopman
The Baltic States and NATO Membership	U.S. Senate Committee on Foreign Relations	Stephen Larrabee
Bioterrorist Threat to Agricultural Livestock and Produce	U.S. Senate Government Affairs Committee	Peter Chalk
China's Economic and Political Impact on South Asia	U.S.-China Economic and Security Review Commission	Rollie Lal
Competitive Sourcing and the Morale of Federal Employees	U.S. Senate Committee on Governmental Affairs	Frank Camm
The Defense Civilian Workforce: Insights from Research	U.S. Senate Committee on Governmental Affairs Subcommittee on Oversight of Government Management, Restructuring, and the District of Columbia	Beth Asch
Ephedra: Is It Worth the Risk?	New York State Senate Committee on Consumer Protection	Paul Shekelle
ICD-10-CM and ICD-PCS Medical Coding	National Committee on Vital & Health Statistics	Martin Libicki
Inflation in Hospital Charges: Implications for the California Workers' Compensation Program	California Senate Labor and Industrial Relations Committee	Barbara Wynn
Medicare Payments for Physician Services	Medicare Payment Advisory Committee	Melinda Beeuwkes Buntin
Next Steps in Iraq and Beyond	U.S. Senate Committee on Foreign Relations	James Dobbins
Remarks Before the National Commission on Terrorist Attacks Upon the United States	National Commission on Terrorist Attacks upon the United States	Brian M. Jenkins Michael A. Wermuth
Statement on the Final Report of the President's Task Force to Improve Health Care Delivery for Our Nation's Veterans	U.S. House Committee on Veterans' Affairs	C. Ross Anthony

Congressional Delegation State Meetings

Topic	Audience	Briefer
Financing the Health Security Safety Net in Los Angeles	Los Angeles Congressional District Directors	Jeffrey Wasserman, Stephen Asch
Reducing Gun Violence in Los Angeles	Los Angeles Congressional District Directors	Jack Riley
Emergency Responders	Virginia Congressional Delegation and Senate Offices	Tom LaTourrette
Port Security	Virginia Congressional Delegation and Senate Offices	Jack Riley
Federal Employees and Competitive Sourcing Initiatives	Virginia Congressional Delegation and Senate Offices	Frank Camm
Medicare Reimbursement and Related Issues	Virginia Congressional Delegation and Senate Offices	Melinda Beeuwkes Buntin
Student Performance in the Pittsburgh Public Schools	Pittsburgh Congressional and Senate District Offices	Brian Gill
Capacity of City of Pittsburgh and Allegheny County Emergency Responders to Respond to a Terrorist Attack	Pittsburgh Congressional and Senate District Offices	Jeffrey Drezner
RAND's Patient Safety Study for the Agency for Healthcare Research and Quality	Pittsburgh Congressional and Senate District Offices	Donna Farley
RAND's Education Activity in Qatar	Pittsburgh Congressional and Senate District Offices	Rachel Christina

Institutional Milestones

RAND Graduate School Renamed Pardee RAND Graduate School After Major Donor, Frederick S. Pardee

In November 2003, Pardee—who worked as an analyst at RAND from 1957 to 1971—donated $10 million to the RAND Graduate School. This gift is the largest ever made by an individual to RAND, and it is one of the largest gifts ever by an individual to a single Ph.D. program in the United States.

Former RAND Vice President George Tanham Dies at 81

In March 2003, George K. Tanham, director of the Washington Office from 1970 to 1982, died in Arlington, Virginia, after an extended illness. Tanham joined RAND in 1955 and held several positions before retiring in 1987, including leading Project AIR FORCE from 1970 to 1975. He also served on the RAND Board of Trustees and was an advisory trustee at the time of his death. He continued to write on international security issues, especially regarding South Asia, after his retirement.

Former U.S. Treasury Secretary Paul O'Neill Is Reelected to the RAND Board of Trustees

O'Neill, who served as chairman of the RAND Board of Trustees from 1997 until his confirmation as Secretary of the Treasury in January 2001, was reelected to the board in January 2003. He is a longtime friend to RAND: In 2000, a $2.5 million gift from O'Neill and the Alcoa Foundation led to the creation of the Paul O'Neill Alcoa Professorship in Policy Analysis at RAND. He also played a key role in RAND's decision to locate its third major U.S. office in Pittsburgh.

RAND Senior Fellow Martin van der Mandele Named President of RAND Europe

In January 2003, van der Mandele—an expert in strategic management whose clients included Booz Allen & Hamilton in New York, Hamburg, Vienna, and Paris and Arthur D. Little in Brussels and Rotterdam—became the first European to head RAND Europe in the institution's 10-year history. He succeeded David Gompert, who returned to the Washington Office after three years as president of RAND Europe. Van der Mandele's research interests include strategy, organization, and technology management.

RAND CORPORATION

The RAND Corporation Rolls Out Its New Corporate Identity System to Strengthen the RAND Brand

Audits conducted by strategic communications firms in 2001–02 identified several problems: namely, that the predominant external view about RAND was that we only conduct defense or national security work; that the RAND name was often confused with other organizations or referred to by other names; and that the proliferation of materials with individual unit and center identities had weakened the overall corporate brand. To remedy these problems, the Office of External Affairs worked with a communications firm to develop a new verbal and visual identity system to strengthen the RAND brand. Implementation began in October 2003: The verbal system component provides language for use on RAND documents, on Web pages, and in interviews; the visual identity system includes a new logo that makes consistent use of the institutional name the prime component of individual unit and center identities.

RAND Graduate School Launches Volcker Initiative for Public Service

In July 2003, former Federal Reserve chairman Paul A. Volcker, head of a national commission that has proposed sweeping changes to improve the performance of the federal government, donated $600,000 to the RAND Graduate School to fund a government reform initiative.

in 2003

Dana Goldman Becomes the First Recipient of RAND's Corporate Chair in Health Economics

As the Corporate Chair in Health Economics, Goldman will conduct research on economic behavior within the health care system, provide intellectual leadership in health economics, and contribute to corporate research and development efforts to sustain RAND's long tradition of excellence in health policy. Goldman also directs RAND's Health Economics program.

New Product Slate, Designed to Provide Flexibility, Reinforces RAND's Commitment to Quality

The Office of External Affairs, Publications, and the Office of Quality Assurance completed a review of the RAND Publications Product Slate and in June 2003 presented its recommendations to RAND management. Changes to the product slate became effective in October, in tandem with the new RAND branding initiative.

Elizabeth McGlynn Becomes the First Recipient of RAND's Corporate Chair in Health Quality

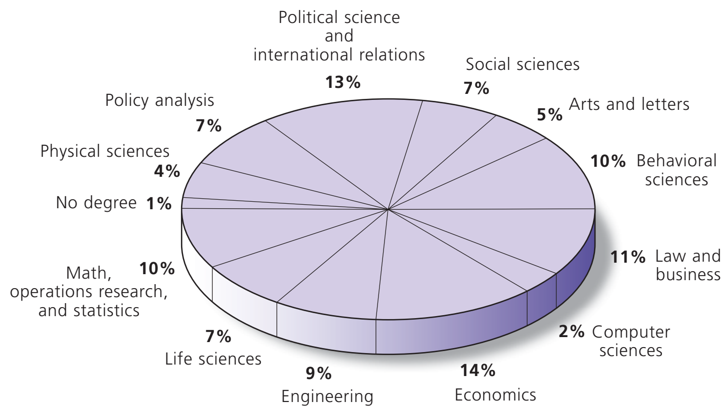
McGlynn, an associate director in RAND Health and director of the RAND Health Center for Research on the Quality of Health Care, is a nationally recognized expert on the measurement of health care quality. Named Corporate Chair in Health Quality in October 2003, McGlynn will be responsible for providing intellectual leadership in the area and contribute to a wide range of other corporate research and development efforts.

RAND-Qatar Policy Institute (RQPI) Opens in October

The Qatar Foundation and RAND established the RQPI in April 2003 to harness the research and analytic skills of hundreds of RAND experts in the United States and Europe to study important issues facing the greater Middle East region. In October, they announced the creation of a Board of Overseers, cochaired by Her Highness Sheikha Mozah Bint Nasser Al Missned and RAND Executive Vice President Michael Rich, to guide the development of the RQPI. The Institute is a part of the Education City created in Doha as a regional center of excellence in learning, research, and technology development.

About the RAND Staff

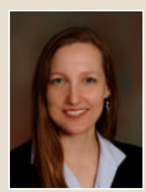
The full- and part-time staff of more than 1,600 represent diversity in work experience; political and ideological outlook; race, gender, and ethnicity; and academic training. Most staff members work at RAND's three principal U.S. locations—Santa Monica, California; Arlington, Virginia; and Pittsburgh, Pennsylvania. Others operate from RAND Europe in Leiden, the Netherlands; Berlin, Germany; and Cambridge, U.K.; from Doha, Qatar; from the RAND Council for Aid to Education in New York City; and from several smaller sites. Eighty-five percent of the research staff hold advanced degrees, with more than 65 percent having earned Ph.D.'s or M.D.'s. To provide the varied expertise needed to fully address public policy issues, the staff's training reflects the broad scope of disciplines shown in the figure.



PRESIDENT'S AWARDS

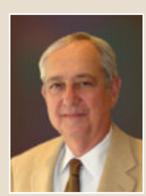
In 1991, RAND President and CEO James A. Thomson established the President's Awards program to recognize the achievements of RAND staff who have made important sustained contributions to RAND and, in doing so, have devoted time and energy beyond the call of duty. Made possible by the generosity of donors to the RAND Policy Circle, the awards provide staff with research time and support to pursue activities related to career development or exploratory research.

These individuals are the fiscal year 2004 President's Award recipients.



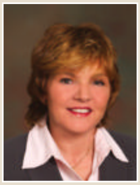
Beth Apillanes, section manager for client services in the Computing Services Department, for her leadership in improving computing support services to RAND staff worldwide and strengthening the integration across RAND's sites, and for her initiative in improving training opportunities for the computing management team.

Catherine Augustine, associate behavioral scientist, for her research, management, and outreach contributions in connection with the multiyear project on improving primary and secondary education in Qatar and the related initiative to strengthen Qatar's postsecondary scholarship program.



Irv Blickstein, senior engineer, for helping RAND strengthen its programs of research for the U.S. Navy and the Office of the Secretary of Defense through his skill at leading research projects on issues related to acquisition policy and effective resource planning and allocation, disseminating research results to senior decisionmakers, and mentoring fellow analysts.

Ricky N. Bluthenthal, behavioral scientist and Pardee RAND Graduate School Professor of Policy Analysis, for his body of research on strategies to prevent HIV transmission and on the effectiveness of community-based health initiatives, and for his varied service to the Pardee RAND Graduate School.



Kathy Ciaramella, manager of occupational and environmental health services, for her creative efforts to reduce and prevent workplace injuries through staff training and ergonomic evaluations, for strengthening our emergency response capabilities at RAND's sites, and for her effective leadership in responding to specific emergencies throughout the year.

Jonathan Grant, RAND Europe research leader and associate director of the Health and Society program, for his influential body of research on UK research and development policy and other issues, including the effectiveness of medical research, the efficiency of British governmental services, and the social implications of European demographic trends; as well as for his contribution to elevating RAND Europe's profile in the United Kingdom.

Valorie Hall, business analyst, Office of Planning and Analysis, for her skill and care in performing key corporate and unit-level analyses and her effective collaboration with research units on their important business issues, including product-line expansion, refinement of unit performance metrics, and development of novel management tools.

Meg Harrell, senior social scientist, for her diverse body of research on the management of the defense personnel force, especially related to gender integration in the military and to measuring and improving quality of life for military families; for her skill in leading multisite research teams; and for her effectiveness in communicating and disseminating the results to senior policymakers.

Ted Harshberger, director of the Aerospace Force Development Program within RAND Project AIR FORCE, for effectively leading RAND's research on issues related to aerospace strategy and doctrine, strengthening RAND's relationship with the senior leadership of the U.S. Air Force, and playing a key role in several corporate task forces.

Donna J. Keyser, associate director of operations, RAND–University of Pittsburgh Health Institute, for playing a central role in establishing and developing RAND's research collaboration with the University of Pittsburgh in numerous areas of health policy, and for her pioneering efforts to launch the new RAND office in Pittsburgh and link it with RAND's other sites.

Nelson Lim, co–group manager of the Behavioral Sciences Group and Pardee RAND Graduate School Associate Professor of Race and Public Policy, for his wide-ranging research portfolio, his skillful efforts to recruit and retain RAND analysts, and his pathbreaking efforts to develop new course work on the role of race in public policy.

Michael Misumi, section manager for computing operations in the Computing Services Department, for his excellent performance as leader of RAND's network, server, and desktop administration, computer center operations, and telecommunications staff, and especially his stellar contributions to analyzing and improving RAND's corporate computer security.

RAND ALUMNI ASSOCIATION

The RAND Alumni Association was established in 1992 as an independent organization. Membership in the Alumni Association is open to current and former RAND personnel, including adjunct staff and military officers who served as research fellows at RAND. The main purpose of the Alumni Association is to promote social and professional activities of common interest to members, who currently number more than 2,000. Benefits to members include the *Alumni Bulletin*, which is published three times a year, and invitations to briefings and social events. The RAND Alumni Association's Web site address is www.rand.org/alumni.

THE PARDEE RAND GRADUATE SCHOOL

The RAND Graduate School was founded in 1970 as one of the eight original graduate programs in public policy in the United States. It is the only program that focuses exclusively on the Ph.D. It is also the only one not at a university but rather at a think tank. The School takes advantage of its unique location at RAND by combining advanced course work in fields RAND has helped pioneer (systems analysis, economics, organizational analysis, evaluation, quantitative methods, strategy) and "on-the-job training," where students work with RAND researchers and clients on interdisciplinary teams. This powerful synergy of theory and practice is unique in American higher education.

With 59 professors and a student body of 86, the School enjoys one of the most favorable faculty–student ratios in higher education. Its student body is remarkable and remarkably diverse. Most students have already earned advanced degrees, ranging from doctorates in the sciences or in medicine to master's degrees in a variety of disciplines. Graduates have gone to high-level positions in government, the private sector, academia, and nonprofit groups. In all their diversity, its students have three things in common: passion, discipline, and intellectual power.

The School's Ph.D. in policy analysis is designed to train creative thinkers to play important roles in solving major problems facing the nation and the world. Rigorous courses all operate as seminars, and students get the opportunity to work alongside top RAND researchers on a broad range of projects as part of their on-the-job training. All students receive fellowships that pay for all tuition costs and health care, and a stipend based on the work they perform on RAND research projects.

In November 2003, former RAND analyst Frederick S. Pardee donated $10 million to the School, which changed its name to the Frederick S. Pardee RAND Graduate School (PRGS) in appreciation of the gift. Pardee's gift is the largest ever made by an individual to the RAND Corporation and is one of the largest gifts ever by an individual to a single Ph.D. program in the United States. The $10 million gift will be used to increase the endowment of the School, which stood at $4.3 million before Pardee's donation, ensuring that the school remains self-supporting. "I don't consider this a gift to RAND," Pardee said. "I consider it a gift to the world, because PRGS graduates will work to change the world for the better. I'm not in the dream business, but I do believe it's possible to help shape the future and improve the lot of the least advantaged with creative thinking by talented people, like the graduates of the PRGS."

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    - Director, Program Analysis and Evaluation
  - Under Secretary of Defense for Personnel and Readiness
    - TRICARE Management Activity
  - Under Secretary of Defense for Policy
    - Director, Net Assessment
- U.S. Coast Guard

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- Education Commission of the States
- National Center for Education Statistics
- Office of Educational Research and Improvement
- Planning and Evaluation Service

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- Energy Efficiency and Renewable Energy
- National Energy Technology Laboratory
- National Renewable Energy Laboratory
- Oak Ridge National Laboratory

Department of Health and Human Services
- Administration for Children and Families
- Agency for Healthcare Research and Quality
- Assistant Secretary for Planning and Evaluation
- Centers for Medicare and Medicaid Services
- Centers for Disease Control and Prevention
  - National Institute for Occupational Safety and Health
- Health Resources and Services Administration
- National Institutes of Health
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  - National Institute on Aging
  - National Institute on Alcohol Abuse and Alcoholism
  - National Cancer Institute
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  - National Institute for Dental and Craniofacial Research
  - National Institute on Drug Abuse
  - National Institute of Mental Health
  - National Institute of Nursing Research
- Substance Abuse and Mental Health Services Administration

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- National Institute of Justice

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United States Capitol Police
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German Ministry of Transport
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Stockholm Transport Commission
United Kingdom
- National Audit Office
- National Health Service

People's Republic of China, Ministry of Health
Romanian Ministry of Defense
State of Qatar
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International Organizations

Berlin-Brandenburg Flughafen Holding
International Air Transport Association
World Bank

State and Local Governments

State of California
- Air Resources Board
- California Arts Council
- California Legislative Analyst's Office
- California State Auditor
  - Bureau of State Audits
- Department of Corrections
- Department of Education
- Department of Emergency Services
- Department of Industrial Relations
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- Governor's Office of Emergency Services
- Welfare Policy Research Project

California City and County Offices
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New Mexico Workers' Compensation Administration

New York City Palliative Care Quality Improvement

Ohio Department of Education

Oregon Criminal Justice Commission

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Report of Independent Auditors

To the Board of Trustees
The RAND Corporation

In our opinion, the accompanying consolidated statement of financial position and the related consolidated statements of activities and changes in net assets and of cash flows present fairly, in all material respects, the financial position of The RAND Corporation and its subsidiaries at September 28, 2003, and the changes in their net assets and their cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit of these statements in accordance with auditing standards generally accepted in the United States of America, which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

The prior year summarized consolidated comparative information included in the financial statements referred to above has been derived from the Company's September 29, 2002 consolidated financial statements, and in our report dated January 28, 2003, we expressed an unqualified opinion on those financial statements.

PricewaterhouseCoopers LLP

January 22, 2004

The RAND Corporation

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(in thousands)

	September 28, 2003	September 29, 2002
ASSETS		
Current assets		
Cash and cash equivalents	$ 8,681	$ 3,808
Receivables		
Billed and unbilled costs and fees (Note 2)	32,837	37,596
Other receivables (Note 3)	4,880	3,481
Prepaid expenses and other current assets	4,573	3,488
Restricted cash (Note 14)	—	602
Total current assets	50,971	48,975
Property and equipment		
Land	1,334	1,334
Buildings and improvements	183	183
Leasehold improvements	6,518	5,230
Equipment	28,505	27,386
	36,540	34,133
Less: Accumulated depreciation and amortization	22,075	19,030
	14,465	15,103
Construction in progress (Note 13)	54,321	16,039
Net property and equipment	68,786	31,142
Long-term investments (Note 4)	141,255	131,649
Building project fund investments (Note 14)	87,686	117,231
Bond issue costs, net (Note 14)	3,265	3,166
Other assets	5,504	5,783
Total assets	$ 357,467	$ 337,946
LIABILITIES AND NET ASSETS		
Current liabilities		
Accounts payable and other liabilities	$ 32,200	$ 20,457
Accrued bond interest payable	896	515
Bank loan payable (Note 5)	—	1,000
Unexpended portion of grants and contracts received	15,074	18,595
Accrued compensation, vacation, and retirement	12,131	11,611
Total current liabilities	60,301	52,178
Other liabilities	—	697
Accrued postretirement benefit liability (Note 7)	11,148	10,979
Long-term debt (Note 14)	130,184	130,190
Commitments and contingencies (Notes 8 and 9)	—	—
Total liabilities	201,633	194,044
Net assets		
Unrestricted		
Operations	3,229	2,848
Designated for investment (Note 10)	116,094	108,178
Designated for special use (Note 10)	5,146	4,054
Total unrestricted	124,469	115,080
Temporarily restricted (Note 11)	11,883	9,615
Permanently restricted (Note 12)	19,482	19,207
Total net assets	155,834	143,902
Total liabilities and net assets	$ 357,467	$ 337,946

The accompanying notes are an integral part of these consolidated financial statements.

The RAND Corporation

CONSOLIDATED STATEMENTS OF ACTIVITIES AND CHANGES IN NET ASSETS

with summarized financial information for the year ended September 29, 2002
(in thousands)

	For the Years Ended						
	September 28, 2003						September 29, 2002
	Unrestricted Net Assets						
	Operations	Designated	Total Unrestricted	Temporarily Restricted	Permanently Restricted	Total	Total
REVENUES, GAINS, AND OTHER SUPPORT							
Contracts and grants	$ 194,333	$ —	$ 194,333	$ —	$ —	$ 194,333	$ 167,356
Fees	7,926	—	7,926	—	—	7,926	4,980
Income on investments, net	—	3,317	3,317	466	—	3,783	2,996
Net realized gains (losses) on investments	—	1,165	1,165	163	—	1,328	(1,845)
Net unrealized gains on investments	—	8,312	8,312	1,359	—	9,671	6,605
Contributions	3,670	191	3,861	4,136	275	8,272	8,912
Other	1,886	—	1,886	—	—	1,886	636
Transfer of designated net assets to operations	3,977	(3,977)	—	—	—	—	—
Net assets released from restrictions due to satisfaction of program restrictions	3,856	—	3,856	(3,856)	—	—	—
Total revenues, gains, and other support	215,648	9,008	224,656	2,268	275	227,199	189,640
EXPENSES							
Research	174,218	—	174,218	—	—	174,218	150,319
Management and general	41,049	—	41,049	—	—	41,049	33,270
Total expenses	215,267	—	215,267	—	—	215,267	183,589
Change in net assets	381	9,008	9,389	2,268	275	11,932	6,051
Net assets at beginning of year	2,848	112,232	115,080	9,615	19,207	143,902	137,851
Net assets at end of year	$ 3,229	$ 121,240	$ 124,469	$ 11,883	$ 19,482	$ 155,834	$ 143,902

The accompanying notes are an integral part of these consolidated financial statements.

The RAND Corporation

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	For the Year Ended September 28, 2003	For the Year Ended September 29, 2002
Cash flows from operating activities:		
Change in net assets	$ 11,932	$ 6,051
Adjustments to reconcile change in net assets to net cash provided by operating activities:		
Adjustment to postretirement benefit liability	169	73
Depreciation	4,260	3,464
Amortization	720	590
Loss (gain) on disposition of property and equipment	102	(26)
Permanently restricted contributions	(355)	(282)
Net realized/unrealized gains	(10,999)	(4,760)
Decrease (increase) in billed and unbilled costs and fees	4,759	(1,663)
Increase (decrease) in other receivables	(1,399)	3,840
Increase in prepaid expenses and other current assets	(1,085)	(399)
Decrease (increase) in restricted cash	602	(602)
Increase in accounts payable and other liabilities	11,743	3,056
Increase in bond interest payable	381	515
Decrease in unexpended portion of grants and contracts received	(3,521)	(2,700)
Increase in accrued compensation, vacation, and retirement	520	383
Decrease in other liabilities	(697)	(475)
Net cash provided by operating activities	17,132	7,065
Cash flows from investing activities:		
Purchase of investments	(22,602)	(72,377)
Proceeds from sale of investments	24,146	70,197
Purchases of building project fund investments	29,545	(117,231)
Purchases for construction in progress	(38,284)	(9,198)
Purchases of equipment	(4,229)	(3,326)
Proceeds from disposal of equipment	2	66
Net cash used in investing activities	(11,422)	(131,869)
Cash flows from financing activities:		
Permanently restricted contributions	355	282
Net repayments under line-of-credit	(1,000)	(2,500)
Proceeds from issuance of bonds	—	130,192
Payment of bond issue costs	(192)	(3,187)
Net cash provided by financing activities	(837)	124,787
Net increase (decrease) in cash and cash equivalents	4,873	(17)
Cash and cash equivalents at beginning of year	3,808	3,825
Cash and cash equivalents at end of year	$ 8,681	$ 3,808
Supplemental disclosures of cash flow information:		
Cash paid during the year for interest (net of capitalized interest of $544,000 and $323,000 in fiscal years 2003 and 2002, respectively)	$ 1,779	$ 70

The accompanying notes are an integral part of these consolidated financial statements.

1. Summary of Accounting Policies

a. Corporate Organization. The RAND Corporation (RAND) is a nonprofit, tax-exempt corporation performing research and analysis funded by contracts, grants, and contributions. In addition, RAND conducts educational programs that provide graduate training.

The consolidated financial statements of RAND include the accounts of two controlled affiliates: RAND Europe, a foundation domiciled in The Netherlands, and the Council for Aid to Education (CAE), a nonprofit organization in New York. All intercompany balances and transactions have been eliminated in consolidation.

b. Fiscal Year. RAND's fiscal reporting for both financial statement and tax purposes is based on a 52- or 53-week year ending on the Sunday closest to September 30. The fiscal years include operations for 52-week periods in 2003 and 2002.

c. Basis of Presentation. The accompanying financial statements have been prepared on the accrual basis of accounting in accordance with the American Institute of Certified Public Accountants Audit and Accounting Guide, "Not-for-Profit Organizations."

Certain prior-year amounts have been reclassified to conform with the current-year presentation.

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements. Estimates also affect the reported amount of revenues, expenses, or other changes in net assets during the reporting period. Actual results could differ from these estimates.

Net assets are classified into three categories according to donor-imposed restrictions, as follows:

Permanently restricted—Net assets subject to donor-imposed stipulations that neither expire by passage of time nor can be fulfilled or otherwise removed by actions of RAND. Generally, the donors of these assets permit RAND to use all or part of the investment return on these assets.

Temporarily restricted—Net assets whose use by RAND is subject to donor-imposed stipulations that either expire by passage of time or can be fulfilled and removed by actions of RAND.

Unrestricted—Net assets that are not subject to donor-imposed stipulations. Unrestricted assets may be designated for specific purposes by action of the Board of Trustees.

The financial statements include certain prior-year summarized comparative information in total but not by net asset category. Such prior-year information does not include sufficient detail to constitute a presentation in conformity with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with RAND's financial statements for the year ended September 29, 2002, from which the summarized financial information was derived.

d. Revenue and Expense Recognition. RAND derived 72 percent of its revenues in 2003 and 76 percent of its revenues in 2002 from contracts, grants, and fees with agencies of the federal government.

Contract and grant revenues are recognized as the related services are performed in accordance with the terms of the contract or grant or using the percentage of completion method.

Contributions, including unconditional promises to give, are recognized as revenue in the period received and are reported as increases in the appropriate category of net assets. Donor-restricted contributions which are received and either spent or deemed spent within the same fiscal year are reported as unrestricted revenue.

Expenses are generally reported as decreases in unrestricted net assets. Expirations of donor-imposed stipulations or of board designations that simultaneously increase one class of net assets and decrease another are reported as transfers between the applicable classes of net assets.

Gains and losses on investments and investment income are reported as increases or decreases in unrestricted net assets, unless their use is restricted by explicit donor stipulation.

Investment income is shown net of related expenses of $404,000 and $623,000, for the fiscal years ended September 28, 2003, and September 29, 2002, respectively.

e. Cash and Cash Equivalents. RAND considers all highly liquid debt instruments purchased with a maturity of three months or less to be cash equivalents.

f. Property and Equipment. Property and equipment are stated at cost and are depreciated using the straight-line method over their estimated useful lives, as follows:

	Estimated Useful Life
Buildings and improvements	5 years
Leasehold improvements	2–15 years
Equipment	3–10 years

When assets are retired, the assets and related allowances for depreciation and amortization are eliminated from the accounts and any resulting gain or loss is reflected in operations. As of September 28, 2003, and September 29, 2002, approximately $7,952,000 and $8,253,000, respectively, of fully depreciated assets were in use.

g. Income Tax Status. RAND is exempt from income tax under Section 501(c)(3) of the U.S. Internal Revenue Code and corresponding California provisions and has qualified for the 50 percent charitable contributions limitation. RAND has been classified as an organization that is not a private foundation under Section 509(a)(1) and has been designated a "publicly supported" organization under Section 170(b)(1)(A)(vi) of the Internal Revenue Code.

2. Billed and Unbilled Costs and Fees

The following table summarizes the components of billed and unbilled contract and grant costs and fees (in thousands):

	September 28, 2003	September 29, 2002
U.S. government agencies		
Billed	$ 7,123	$ 14,629
Unbilled	12,416	10,075
	19,539	24,704
State, local, and private sponsors		
Billed	6,909	5,691
Unbilled	6,389	7,201
	13,298	12,892
	$ 32,837	$ 37,596

Unbilled amounts principally represent recoverable costs and accrued fees billed in October 2003 and October 2002, respectively.

No significant contract terminations are anticipated at present, and past contract terminations have not resulted in significant unreimbursed costs.

3. Contributions Receivable

At September 28, 2003, and September 29, 2002, RAND included $3,437,000 and $2,563,000, respectively, of unconditional promises to give in the financial statements as part of other receivables. The receivables are recorded net of the discount for future cash flows. The discount rate applied was 5 percent.

Realization of the promises at September 28, 2003, and September 29, 2002, is expected in the following periods (in thousands):

	September 28, 2003	September 29, 2002
In one year or less	$ 2,218	$ 1,797
Between one year and five years	1,307	812
Less discount	(88)	(46)
	$ 3,437	$ 2,563

Contributions receivable at September 28, 2003, and September 29, 2002, are intended for the following uses (in thousands):

	September 28, 2003	September 29, 2002
General support	$ 3,109	$ 2,272
Permanently restricted	328	291
	$ 3,437	$ 2,563

During the fiscal year ended September 28, 2003, RAND received payments of prior-year promises in the amount of $1,450,000. No allowance for uncollectible promises receivable has been recorded in the consolidated financial statements at September 28, 2003, or September 29, 2002.

Donors have made conditional promises to give of $4,537,000 and $4,378,000 as of September 28, 2003, and September 29, 2002, respectively. The conditional promises to give, which include revocable deferred gifts, are not recorded in these consolidated financial statements.

4. Long-Term Investments

Cash and cash equivalents include commercial paper, money market funds, and other short-term investments and are carried at cost, which approximates fair value.

Shares of bond funds and equity funds are presented at fair value. These funds consist of investments in both domestic and foreign equity securities and bonds. Approximately 13 percent of the long-term assets consist of foreign stocks and bonds.

RAND also has equity interest in alternative investments that invest in securities and other instruments. The alternative investments are carried at RAND's portion of each investment's net book value which approximates fair value.

Cost of securities sold is determined by the specific identification method.

Long-term investments consist of the following (in thousands):

	September 28, 2003	September 29, 2002
Cash and cash equivalents	$ 6,228	$ 12,673
Shares of bond funds, at fair value (cost, 2003—$ 70,031, and 2002—$ 74,330)	75,579	79,485
Shares of equity funds, at fair value (cost, 2003—$ 34,607, and 2002—$ 29,347)	37,037	24,598
Alternative investments (cost, 2003—$ 15,224, and 2002—$ 10,140)	22,411	14,893
	$ 141,255	$ 131,649

5. Bank Loan

RAND has an uncollateralized line of credit with Bank of America in the principal amount of $18,000,000 at September 28, 2003, which expires on May 29, 2004. The line of credit contains covenants that require RAND to maintain a minimum amount of liquid assets and tangible net worth. There were no amounts outstanding at September 30, 2003. The outstanding balance at September 29, 2002, was $1,000,000. Under the terms of the credit agreement, interest is payable monthly at either the prime rate less .75 percent or the LIBOR rate plus 1.5 percent, as selected by RAND. The largest amounts drawn on the line-of-credit agreement were $8,400,000 and $15,325,000 in 2003 and 2002, respectively. Interest expense was $29,000 and $191,000 for the fiscal years ended September 28, 2003, and September 29, 2002, respectively.

6. Employee Retirement Plans

RAND has three defined contribution employee plans: a Qualified Retirement Plan ("QRP"), a Supplemental Retirement Annuity Plan ("SRAP"), and a Nonqualified Supplementary Plan ("NSP"). Most full-time, regular employees are eligible to participate in the QRP and SRAP. Certain employees are eligible to participate in the NSP. RAND has reserved the right to terminate the plans at any time, but in such an event, the benefits already purchased by the participant and contributions already made by RAND would not be affected. The QRP and the NSP are entirely RAND financed. RAND's contributions to the Plans for eligible employees range from 5 percent to 14 percent of salaries, depending on the level of wages and age of the participating employee. RAND's contributions to the QRP vest at the earlier of retirement or four years of service. Vesting begins after two years of service and increases weekly to 100 percent at the end of four years of service. The NSP vests under various conditions specified in the plan. All contributions made by RAND are charged to operations. RAND's contributions were $8,590,000 and $7,630,000 for the fiscal years ended September 28, 2003, and September 29, 2002, respectively. The SRAP only requires employee contributions and RAND does not contribute to this plan.

7. Postretirement Benefits Other than Pensions

In addition to providing retirement benefits, RAND provides health care benefits to certain employees who retire having met the required age and years of service with RAND. This coverage also applies to their dependents. Retirees may elect coverage under the Preferred Provider Organization, various HMOs, or reimbursement of individually purchased Medigap policies. Medicare becomes the primary coverage for retirees when they reach age 65. Retirees and dependents share substantially in the cost of coverage. RAND retains the right, subject to existing agreements, to change or eliminate these benefits.

The following table sets forth the plan's funded status reconciled with the amount shown in the consolidated statements of financial position (in thousands):

	September 28, 2003	September 29, 2002
Change in benefit obligation		
Benefit obligation at beginning of year	$ 12,428	$ 11,846
Service cost	378	352
Increase due to passage of time	824	843
Plan participants' contributions	227	230
Amendments	—	69
Actuarial (gain) loss	3,496	(186)
Benefits paid	(767)	(726)
Benefit obligation at end of year	16,586	12,428
Change in plan assets		
Fair value of plan assets at beginning of year	3,293	3,502
Actual return on plan assets	490	(326)
Employer contributions	620	597
Plan participants' contributions	227	215
Benefits paid	(767)	(695)
Fair value of plan assets at end of year	3,863	3,293
Funded status	(12,723)	(9,135)
Unrecognized net actuarial gain	1,850	(1,476)
Unrecognized prior service cost	(275)	(368)
	$ (11,148)	$ (10,979)

The health care cost trend rate assumption has a significant effect on the amounts reported. Increasing the assumed health care cost trend rates by one percentage point in each year would increase the service cost and increase due to passage-of-time components of the fiscal year 2003 expense by $293,000 and the accumulated postretirement benefit obligation as of September 28, 2003, by $2,420,000. Decreasing the assumed health care cost trend rates by one percentage point in each year would decrease the service cost and decrease due to passage-of-time components of the fiscal year 2003 expense by $235,000 and the accumulated postretirement benefit obligation as of September 28, 2003, by $2,000,000.

For measuring the liabilities, the health care cost trend rates were assumed to be 9.0 percent and 10.0 percent for the fiscal year ended September 28, 2003, for pre-65 and post-65 benefits, respectively, gradually declining to 5.0 percent for both after 8 years, and remaining at that level thereafter. The APBO discount rate was 6.35 percent and 6.75 percent at September 28, 2003, and September 29, 2002, respectively.

The net periodic postretirement benefit cost (credit) for fiscal years ended September 28, 2003, and September 29, 2002, included the following components (in thousands):

	2003	2002
Service cost-benefits attributed to service during the period	$ 378	$ 352
Increase in the accumulated postretirement benefit obligation to recognize the effects of the passage of time	824	844
Return on plan assets	(266)	(274)
Recognition of gain	(70)	(150)
Recognition of prior service cost	(93)	(101)
	$ 773	$ 671

RAND contributes to a Voluntary Employee Benefit Association irrevocable trust that is used to partially fund health care benefits for future retirees. In general, retiree health benefits are paid as covered expenses are incurred.

8. Long-Term Commitments

Operating lease commitments, net of sublease income of $3,429,000, are as follows (in thousands):

2004	$ 8,444
2005	6,711
2006	5,679
2007	5,689
2008	5,854
Thereafter	39,728
	$ 72,105

Future minimum rentals are primarily comprised of microcomputer, equipment, office, and warehouse space leases. All property leases generally require RAND to pay for utilities, insurance, taxes, and maintenance. RAND's rental expense was $10,439,000 and $9,063,000 for the fiscal years ended September 28, 2003, and September 29, 2002, respectively.

9. Commitments and Contingencies

Contract costs billed to government clients are subject to audit by the Defense Contract Audit Agency ("DCAA"). Resulting indirect cost adjustments, if any, are prorated to all contracts. Contract costs billed prior to September 29, 2002, have been audited and accepted. To date, there have been no significant cost disallowances. In the opinion of management, contract costs billed subsequent to September 29, 2002, are allowable, and any potential cost disallowance would not materially affect RAND's financial position or results of operations.

RAND has certain contingent liabilities with respect to claims arising from the ordinary course of business. In the opinion of management, such contingent liabilities will not result in any loss that would materially affect RAND's financial position or results of operations.

During development and construction of the new Santa Monica facility, RAND is leasing its current building from the City of Santa Monica for a period not to extend beyond October 31, 2005. Under the terms of the lease, RAND will pay all maintenance, and operating costs of the property, in lieu of rent. At the termination of the lease and occupation of the new facility, RAND is responsible for demolition of the existing buildings and environmental remediation with respect to the underlying land. The estimated outstanding liability associated with the demolition and environmental remediation included in liabilities is $4,637,000 and $4,657,000 as of September 28, 2003, and September 29, 2002, respectively. In accordance with the agreement with the City of Santa Monica, an escrow account has been established to ensure performance of these matters.

10. Board-Designated Net Assets

Board-designated net assets are available for the following purposes (in thousands):

	September 28, 2003	September 29, 2002
Designated for investment	$ 116,094	$ 108,178
Designated for special use		
RAND Institute for Civil Justice	1,834	1,897
National Security Research and Training	1,381	1,093
RAND Education	1,027	176
President's Fund	407	316
RAND Center for Russia and Eurasia	364	425
Lectureship on Science Policy	80	59
Other	53	88
	5,146	4,054
	$ 121,240	$ 112,232

11. Temporarily Restricted Net Assets

Temporarily restricted net assets are available for the following purposes (in thousands):

	September 28, 2003	September 29, 2002
RAND Center for Middle East Public Policy	$ 2,778	$ 2,944
RAND Center for Domestic and International Health Security	2,032	1,559
National Security Research and Training	1,603	1,546
RAND Center for Russia and Eurasia		
General support	—	219
Business Leaders Forum	1,490	922
Pardee RAND Graduate School	1,270	636
RAND Center for Asia Pacific Policy	707	377
RAND Frederick S. Pardee Center	449	—
RAND Institute for Civil Justice	358	185
RAND Health	274	272
Drug Policy Research Center	214	495
Paul O'Neill Alcoa Professorship in Policy Analysis	201	—
RAND Headquarters	153	—
Lectureship on Science Policy	144	117
RAND Public Safety and Justice	32	—
Center for Terrorism Risk Management Policy	30	—
RAND Education	14	108
RAND Labor and Population	13	115
Other	121	120
	$ 11,883	$ 9,615

12. Permanently Restricted Net Assets

Permanently restricted assets are shown below by the purpose designated by the donor. The assets are invested in perpetuity and the income is available to support the restricted activities (in thousands):

	September 28, 2003	September 29, 2002
National Security Research and Training	$ 4,500	$ 4,500
RAND Institute for Civil Justice	4,125	4,149
RAND Frederick S. Pardee Center	3,670	3,788
Paul O'Neill Alcoa Professorship in Policy Analysis	2,479	2,471
Pardee RAND Graduate School		
General support	1,574	1,533
Awards	970	970
RAND—General support	1,396	1,152
RAND Center for Russia and Eurasia	250	250
Lectureship on Science Policy	246	246
RAND Education	241	115
Other	31	33
	$ 19,482	$ 19,207

13. Construction Commitment

Effective December 2, 2003, RAND is obligated for $76,466,000 under the Final Guaranteed Maximum Price Contract related to the construction of a new headquarters facility in Santa Monica, California. As of September 28, 2003, and September 29, 2002, $33,689,000 and $2,403,000 had been expended under the contract and recorded as Construction in Progress. Also included in Construction in Progress are $1,470,000 and $934,000 for capitalized interest as of September 28, 2003, and September 29, 2002, respectively.

14. Long-Term Debt

RAND issued $130,000,000 of tax-exempt revenue bonds in July 2002, to finance construction of its new Santa Monica facility. Long-term debt is as follows (in thousands):

	September 28, 2003	September 29, 2002
California Infrastructure and Economic Development Fixed Rate Revenue Bonds, Series 2002A, issued in the original principal amount of $32,500,000, in connection with the construction of a new facility in Santa Monica, California, on July 2002; interest rates ranging from 3.50% to 5.50%; annual principal payments ranging from $345,000 to $1,905,000, beginning April 1, 2006, and ending April 1, 2042, including unamortized bond premium of $184,000 and $190,000 as of September 28, 2003, and September 29, 2002, respectively.	$ 32,684	$ 32,690
California Infrastructure and Economic Development Bank Variable Rate Revenue Bonds, Series 2002B, issued in the original principal amount of $97,500,000, in connection with the construction of a new facility in Santa Monica, California, on July 2002; weighted average interest rate of 1.08% inception to date as of September 28, 2003; annual principal payments ranging from $1,430,000 to $4,400,000, beginning April 1, 2006, and ending April 1, 2042.	97,500	97,500
	$ 130,184	$ 130,190

Annual bond principal payments are required in the following fiscal year (in thousands):

2004	$ —
2005	—
2006	2,415
2007	1,785
2008	1,835
Thereafter	123,965
	$ 130,000

The payment of the principal and interest on the bonds is insured by a third party.

Restricted cash. Restricted cash was related to bond issue proceeds held in the bond trustee account at September 29, 2002, and was used for payment of interest on October 1, 2002, and remaining costs of bond issuance on December 31, 2002.

Building Project Fund Investments. The net proceeds from the tax-exempt bond issuance have been invested under a collateralized flexible draw investment agreement. The interest rate is based on the Bond Market Association Municipal Swap Index Rate plus sixty-five (65) basis points. Other revenues includes interest earned on the investments of $1,866,000 and $506,000 in fiscal years 2003 and 2002, respectively. Withdrawals are made to fund the Santa Monica building project.

Bond Issue Costs, Net of Amortization. Bond issue costs represent expenses incurred in connection with issuing the bonds and are being amortized over the term of the related bond issue.

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