

> > > E X P A N D I N G O U R R E A C H





<i>President's Letter</i>	2
<i>Health</i>	4-9
<i>Social and Economic Development</i>	10-13
<i>Education and Training</i>	14-17
<i>Advanced Technology</i>	18-21
<i>Environmental Research</i>	22-26
<i>University Collaboration</i>	27-30
<i>Corporate Information</i>	31
<i>Corporate Resources</i>	32-35
<i>Awards and Recognition</i>	36-37
<i>Financial Summary</i>	38-39
<i>Clients</i>	39
<i>Board of Governors</i>	40
<i>Organization</i>	41



▶ ▶ ▶ E X P A N D I N G O U R R E A C H

In 2003 RTI International expanded the depth and breadth of its services.

We worked in new locations, began projects for many new clients, and added 235 new staff members. Today we are better positioned than ever to fulfill our mission to improve the human condition.

This year represented a new level of achievement for RTI as we further expanded our reach around the world, improving the lives of more and more people.

Health issues continue to be a prime societal concern. We broadened our core health research to include analysis of the economic impact of obesity. In May 2003 the journal *Health Affairs* published an RTI study reporting that overweight and obesity account for over 9 percent of the nation's total health care expenditure—approximately \$93 billion. Concurrently, we studied the effectiveness of efforts to curb another major health hazard, smoking. We continued our efforts to reduce the incidence of HIV and tuberculosis in developing countries, and we expanded our work on projects aimed at improving our nation's health security, such as evaluating the effectiveness of post-anthrax-exposure treatment.

We opened new international offices in 2003, enhancing our ability to work in additional locations around the world. Our new office in Dubai, United Arab Emirates, will serve as a base for health and environmental work in that region. Our El Salvador office will provide research and technical assistance in the areas of health, education, the environment, and Internet technology to countries in Central and South America. This year we also began working with the U.S. Agency for International Development to implement Pakistan's Education Sector Reform Assistance program and help improve local governance in post-war Iraq.

Reaping the benefits of prior investments, we extended our fields of research. We continued to build a program in genomics and bioinformatics, and we won our first major contract in this area to develop a computer-based system to manage immunology data. We also increased our commitment to pure and applied research in nanotechnology, specifically in nanocomposite films and nanofibers.

Financially, RTI turned in another record year, posting earnings of \$333.2 million for fiscal year 2003, an increase of 16.6 percent over the previous year. Our operating earnings rose by 25 percent to \$10.3 million, and in FY03 we booked \$447.6 million in grant funding and new contracts, compared with the previous year's \$359.7 million. Our staff increased by 10 percent—from 2,066 to 2,301.

Our entire management team continues to be inspired by the success and stature of our staff and the tremendous impact that we, as an organization, are having across the globe. We are proud of RTI's accomplishments and the promise that our work holds for improving the condition of so many around the world. As you read through this report, you will see why.





The cornerstone of RTI's mission is to expand our reach into areas of research that will improve the human condition. In this spirit, our health efforts are both proactive and reactive, featuring initiatives that maintain health and fight diseases of the body and mind. Transcending political or ideological boundaries, we take aim at persistent health problems around the globe.

Since September 11, 2001, worldwide threats of terrorism have created new areas for research into hazardous health situations. Eradicating disease, however, is still our single most imposing health challenge. In this regard, the deadly trio of obesity, drug and alcohol abuse, and tobacco use remain destructive factors in the struggle to support optimum physical health. Each year RTI continues to explore further the causes and potential remedies for these debilitating conditions.

health security

global health

pharmaceutical research

costs of obesity

drug and alcohol use

anti-smoking efforts

bioinformatics



Drug and alcohol use ▶ The National Survey on Drug Use and Health (NSDUH) is an annual, nationwide survey of tobacco and alcohol use by approximately 70,000 randomly selected individuals age 12 and older. RTI has conducted the survey since 1988 and was recently awarded a contract to continue the project, which also surveys illicit, non-medical use of prescription drugs. The results of the 2002 survey, released in September 2003, show that an estimated 22 million Americans suffer from substance dependence or abuse. An estimated 120 million Americans report being current drinkers—half the population over age 12. Nearly 19 million Americans age 12 or older needed treatment for an alcohol problem, and 8 million needed treatment for an illicit drug problem. Yet relatively few who needed treatment received it. NSDUH data are used by government agencies, private organizations, researchers, and public policy makers to estimate the need for drug treatment facilities, as well as to support prevention programs and monitor drug control practices.

Costs of obesity ▶ Long identified as a contributing factor to overall poor health, obesity is also a huge economic burden to the American taxpayer. In a groundbreaking study this past year, RTI economists, along with researchers from the Centers for Disease Control and Prevention (CDC), found that medical spending associated with overweight and obesity accounts for 9.1 percent of the nation's health care costs—as much as \$93 billion per year—and that roughly half of this total is financed by taxpayers through Medicare and Medicaid expenditures. This obesity study is the first of its kind to quantify the astonishing extent to which the public sector is financing this problem and its related costs.



Anti-smoking efforts ▶ In April 2003 a 15-year-old girl in the small African nation of Togo became the one millionth participant in the Global Youth Tobacco Survey. Since 1999 RTI has provided logistical and data processing services for the administration of youth surveys in 150 countries as part of this worldwide effort by CDC and the World Health Organization. Survey data indicate that 34.8 million—nearly 20 percent—of the world's 186 million 13- to 15-year-old schoolchildren worldwide are using some form of tobacco; 25.8 million, or one in seven, are smoking cigarettes. Among those, nearly 25 percent smoked their first cigarette before 10 years of age. Since 70 percent say they want to stop smoking, the study suggests giving immediate attention to the development of global and country-specific tobacco-control programs.

RTI is also conducting a four-year longitudinal study for Ohio's Tobacco Use Prevention and Cessation Foundation to evaluate the effectiveness of youth and adult anti-smoking campaigns in that state. The study seeks to gauge the influence of media campaigns and community activities on smoking habits.

Bioinformatics ▶ Mapping the human genome is a huge undertaking aimed at decoding human disease and developing improved treatments. RTI is playing an important role in that process through the application of bioinformatics, which uses the full power of computing to create extensive electronic databases on genomes and protein sequences, profoundly affecting the way scientists conduct health research. Recently RTI won a contract to conduct Phase I of the Bioinformatics Integration Support Contract, a computer-based system to manage scientific data in immunology. RTI will complete a systems analysis and requirements assessment, and develop a prototype of the computer-based system.

Health Security

In the wake of the terror attacks of 2001 and the anthrax exposures that same year, public safety concerns have spawned an unprecedented emphasis on health security. RTI is uniquely qualified for leadership in this area, with expertise already in place that can be adapted to security applications. Projects include the World Trade Center Health Registry and a nationwide particulate matter monitoring and analysis network that can detect and track contaminants to provide early warning of an attack. Others health security projects include:



Post-anthrax-exposure treatment ▶ As part of a program evaluation sponsored by CDC, RTI conducted interviews with nearly 10,000 persons who were advised to take antibiotics following potential anthrax exposure in 2001. Researchers sought to determine how many actually adhered to the recommended treatment regimen, while also assessing any related adverse effects. Results from the 12-month follow-up were released in late 2003; results from the 24-month follow-up will be available in fall 2004. Information gained from the RTI study will help CDC improve technical assistance and ensure that adequate supplies are available if needed for future anthrax exposures.

Smallpox vaccination programs ▶ CDC contracted with RTI in 2003 to study why some people have chosen not to participate in smallpox vaccination programs in five states. Starting with lists of eligible health care workers and health department employees who declined the vaccination, RTI is conducting interviews to identify barriers to their participation. The resulting information, due to be released in mid-2004, will highlight issues that CDC and state health departments need to address in future vaccination efforts.



*Lisa Thalji, Assistant Director,
Survey Research Division*



A telephone interviewer enrolls a potential registrant in the World Trade Center Health Registry.

When the Twin Towers of the World Trade Center collapsed under terrorist attack, Lisa Thalji was working on a variety of business development projects in RTI's Chicago office. Along with others gathered in a conference room, she witnessed the horror on live TV. "I watched in total shock, along with the rest of the country, when the second tower fell." A year later, as a direct result of what she witnessed on TV that day, she took the helm of one of the most ambitious research projects in RTI's history.

The New York City Department of Health and Hygiene, in collaboration with the Agency for Toxic Substances and Disease Registry, created the World Trade Center (WTC) Health Registry—a comprehensive health survey of those persons most directly exposed to the events of September 11. When completed, it will be the largest health registry of its kind. The registry's goal is to help health professionals understand whether these individuals experience short-term or long-term physical or mental health effects as a result of the tragedy.

"The WTC Health Registry is a ground-breaking effort," Thalji explains. "It's a wonderful example of what we do best at RTI—challenging, innovative, first-time-ever type of research."

After five years at RTI, Thalji is still excited by the focus on scientific rigor and the opportunities for multi-disciplinary research that RTI, with its broad in-house array of capabilities, can offer. On this particular project, however, the human element is never far away. "Sometimes we hear something—a simple anecdote—that just brings it all home, but in a positive way: We're reminded of what we do at RTI and how it can touch the lives of people."

Pharmaceutical Research

Pharmaceutical research spans a wide range of activities at RTI, from discovering and developing new drugs to conducting a variety of outcomes research services. Our clients include pharmaceutical companies and government agencies.



In April 2003 the American Chemical Society, the world's largest scientific society, commemorated the discovery of Taxol and camptothecin at RTI by designating RTI a National Historic Chemical Landmark.

RTI Health Solutions ▶ RTI Health Solutions offers a variety of outcomes research services to the pharmaceutical, biotechnology, and medical device industries. Organized in 2000 as a separate business unit, RTI-HS focuses on commercial clients. RTI Health Solutions is an international leader in pharmaceutical risk management, which is increasingly important due to recent high-profile drug safety events and federal regulatory requirements. During the past year, RTI-HS conducted an analysis of worldwide data on possible long-term drug side effects. As an alternative to monitoring thousands of users over 10 years, RTI-HS's innovative methodology directly analyzes case records of the few serious outcomes. RTI-HS is also conducting an evaluation of an FDA-mandated program required for the reintroduction to the market of an important new product for diarrhea-predominant irritable bowel syndrome. Other recent projects are listed in the box at right.

Health sciences ▶ RTI has long played a prominent role in drug discovery and the development and evaluation of new pharmaceutical products. Taxol® and camptothecin™, discovered by Mansukh Wani, Ph.D., and the late Monroe Wall, Ph.D., were developed through seminal research at RTI in the 1960s and '70s. Today, both compounds are front-line pharmaceuticals in the fight against cancer.

RTI chemists and toxicologists are at work on a number of research projects for the pharmaceutical industry. In 2003 our study directors provided toxicology and analytical support to a biotechnology company that develops drugs to treat pain and inflammation. We also assessed the safety of new compounds designed to provide relief for Alzheimer's and Parkinson's patients. Drug metabolism research is another area of strength at RTI. This past year we helped clients develop advanced drug discovery tools and provided government clients, including the National Cancer Institute and the National Institute on Drug Abuse, with high levels of support on projects to develop compounds to fight cancer and treat drug addiction.

2003 RTI-HS Accomplishments

- ▶ Created a methodology for examining the trade-offs between clinical benefit and toxicity in cancer treatments
- ▶ Performed economic modeling of antiplatelet therapy for prevention of recurrent stroke
- ▶ Analyzed the cost-effectiveness and budget impact of a branded migraine product
- ▶ Studied the prevalence of undiagnosed herpes virus in 36 suburban primary care practices, which showed substantial numbers of infections unrecognized by both patients and physicians

Taxol®, a word coined by Dr. Monroe Wall of RTI, is a trademark of Bristol-Myers Squibb Company. Camptothecin™ is a trademark of RTI.

Global Health

Public health threats are on the rise in many countries. The prevalence of HIV and tuberculosis (TB), as well as limited access to basic health care, are still huge problems. In 2003, RTI was a leader on the global health frontier.

Reducing alcohol and drug abuse in South Africa ▶ RTI's successful domestic HIV prevention intervention for African-American women who abuse crack cocaine was expanded to an international level by adapting it for black South African women. A pilot study funded by the National Institute on Drug Abuse found that brief woman-focused prevention interventions can promote safer behaviors among participants. However, the study also found that women in South Africa face critical levels of violence. Building on those findings, a larger five-year study funded by the National Institute on Alcohol Abuse and Alcoholism was launched in September 2003 in the Gauteng Province of South Africa. The study is designed to reach 900 women to examine patterns of alcohol and other drug use and HIV risk. The study will also compare the effectiveness of two interventions to reduce alcohol and other drug use, sexual risk behaviors, and sex-related violence.

Data-collection technology ▶ Across Asia, Africa, and the Americas, researchers strive to find ways to save lives and improve health. The work often takes place under less-than-optimal conditions, in some of the most impoverished and disease-threatened regions of the world. RTI is making that work easier by installing and maintaining sophisticated local computer networks at the remote research sites, linked securely to the Internet and augmented by an array of advanced data collection tools and technology.

Every 15 seconds a person dies from tuberculosis, a scourge once thought to be eradicated.

Fighting TB ▶ Infecting a full one-third of the world's population, tuberculosis is spreading rapidly in developing countries, which account for 80 percent of the 8.4 million new cases each year. With funding from the U.S. National Institute of Allergy and Infectious Diseases (NIAID), RTI is encouraging and participating in the research and development of new TB drugs and analyzing markets to provide up-to-date information for potential investors. RTI played a key role in planning and forming the Global Alliance for TB Drug Development, an international nonprofit public-private partnership whose mission is to develop new TB medicines at affordable prices. With NIAID support, RTI serves as project manager for PA-824, the leading compound in the alliance's portfolio. Currently in preclinical studies, PA-824 has shown effectiveness against both drug-sensitive and multi-drug-resistant TB strains.



With our multidisciplinary capabilities, we bring powerful research expertise to a wide range of social and economic challenges, both in the U.S. and abroad.

Topics addressed in 2003 include tax issues, crime and justice programs, and local governance.

Cigarette Excise Tax study ▶ Raising excise taxes on cigarettes has long seemed an attractive revenue source for many states, but factors such as smuggling and tax evasion have made it difficult to measure the true impact of such an increase. In May 2003 RTI announced the findings from a study conducted for the Tobacco Technical Assistance Consortium at Emory University. RTI researchers found that cigarette sales typically decline sharply immediately after a cigarette tax increase, then rise again, finally settling at a new, lower sales level. The study provides concrete evidence that a tax hike can raise net revenues but suggests that curbing tobacco tax evasion is necessary to maximize those revenues.

local governance project in Iraq

cigarette excise tax

office in El Salvador

urban development in Indonesia

crime, justice policy, and behavior

Crime, Justice Policy, and Behavior Program ▶ Issues of crime and justice are basic to the viability of human social life. RTI has conducted research in this area since the 1970s, but three years ago we extended our reach into this important field by establishing the Crime, Justice Policy, and Behavior Program. Ongoing projects include evaluation studies of the Safe Schools/Healthy Students initiative and alternative methods of drug treatment, as well as research into appropriate treatments for HIV-positive and at-risk sex workers. In April 2003 the National Institute of Justice awarded RTI a grant to evaluate selected programs funded by the Serious and Violent Offender Reentry Initiative. The project, aimed at reducing the nation's recidivism rate, will draw on RTI's multidisciplinary expertise in the areas of criminal behavior and justice, substance abuse, physical and mental health, employment and training, housing, education, surveys, and research computing.



Local Governance Project Goals

The LGP is guided by four goals, all centered on improving the quality of life in Iraq:

- ▶ Increased access to basic services
- ▶ More transparent and participatory public policy making and local governance processes
- ▶ More effective and efficient local services, use of resources, and staff management
- ▶ More effective advocacy and participation of civil society organizations in local government processes and service delivery



Local Governance Project in Iraq ▶ RTI has a long history of helping developing countries improve their local governance. In April 2003 we were awarded a contract by the U.S. Agency for International Development to encourage civic participation in local government in Iraq. By late 2003, the Local Governance Project (LGP) had set up offices in 17 of 18 Iraqi governorates, deployed over 200 professional staff from 33 countries, and hired approximately 800 Iraqis.

Specifically, RTI is providing technical assistance and training programs in an effort to improve the management skills of local administrators and their understanding of municipal services. In Baghdad, for example, the LGP has played an instrumental role in devising and implementing a local governance structure of one city council, nine district advisory councils, and 88 neighborhood advisory councils, representing all of the city's 5.6 million residents. LGP technical assistance has made it possible for government service delivery departments to plan, budget, and manage their resources, allowing them to be more transparent and accountable in the use of public resources.

The delivery of basic services is crucial, and more than 4.9 million people now have access to water as a result of repairs to water treatment plants, pumping stations, and water mains. RTI has also improved access to drugs and medical care for more than 5.3 million people by rehabilitating medical supply warehouses and primary health care facilities.

RTI also has the authority to grant contracts to Iraqi and foreign non-governmental organizations to help train administrators and civilians in communication, conflict resolution, political analysis, and leadership. A top priority during this process is to increase the level of political participation of "at-risk" groups—including those that represent the interests of women, minorities, and youth in Iraq.

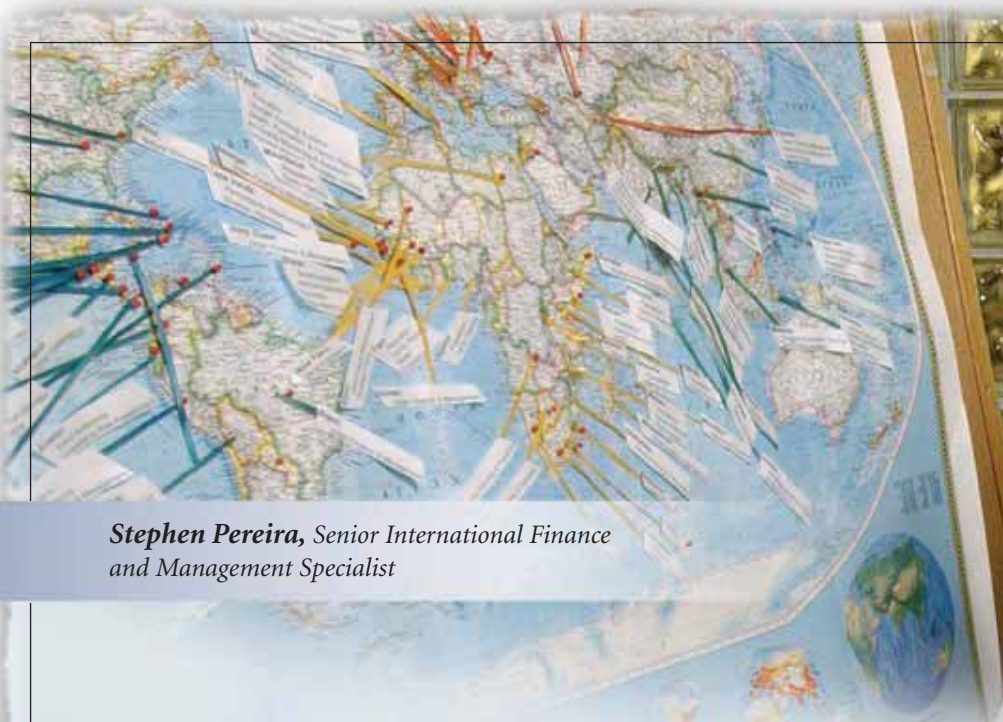


Permanent office opens in El Salvador ▸ Since the mid-1980s, RTI has carried out a number of successful projects in El Salvador to encourage municipal development, legislative strengthening, and heightened awareness among citizens regarding their rights and obligations. Through this work, RTI has developed a stellar reputation, making that country a logical base from which to extend our reach into Central and South America. RTI's El Salvador office opened in fall 2003 with the goal of making significant improvements in the country's health, education, environment, and Internet communication technology. El Salvador's central location will help us diversify our markets for similar programs in the Central American region and beyond.

Urban development in Indonesia ▸ RTI has been active in Indonesia for 12 years, with a permanent office in Jakarta. New legislation recently introduced in the country has decentralized some financial resources and given greater authority to local governments. Building on previous RTI efforts, the PERFORM Project (Performance-Oriented Regional Management) is assisting Indonesians with all aspects of the shift to decentralization. Reforming taxes to bolster local capability has been a major focus of RTI's consultative work with Indonesia's Ministry of Finance. Over the past year, the RTI team's recommendations have been incorporated into legislation drafted by the ministry's Directorate General for Central-Regional Financial Balance. Other proposed changes will give local governments access to better debt-financing mechanisms, allowing for increased flexibility and financial control. The PERFORM Project also advises the Indonesian government on administrative decentralization, setting service standards for local governments as they take on more responsibility. In addition, PERFORM team members are helping local and provincial governments develop effective capital planning methods.



A teacher and his students from Probolinggo (East Java, Indonesia) proudly show off the plants that they sell to raise money for their school. Probolinggo has received RTI technical assistance in participatory planning under the USAID PERFORM project.



Stephen Pereira, Senior International Finance and Management Specialist



Facilitator Eunice Zelaya leads a strategic planning exercise for a community-based organization that manages the water supply service of San Antonio del Monte municipality in El Salvador.

Stephen Pereira, manager of RTI's new El Salvador office, is truly international: born in Uganda of Goan heritage, he has lived in Africa, Asia, Europe, and South America. RTI attracted him because, he says, "it put the world within reach." Pereira has been a part of RTI's presence in El Salvador since 1985—working on several short-term USAID contracts—and remembers the fear and danger there during the 1980s. He recalls being trapped in a hotel during a rebel offensive and escaping only moments before guerrillas captured his associates—including the Secretary General of the Office of Administrative Services. Later, he saw the others on CNN, paraded across the screen as hostages.

During those difficult times in El Salvador, and in the years leading up to a cease-fire and constitutional democracy, RTI won the respect of all sides: left, right, and center. "They saw we were true to our philosophy," says Pereira. RTI became known throughout El Salvador for building consensus and promoting local democratic governance through increased citizen involvement. Today, thanks to some of this work, former battlefield enemies serve in the same parliament, and El Salvador's ferocious internal conflict is only a bad memory. "Now we're doing some great technical work," Pereira explains, "but we had to start from the very beginning, building basic trust and respect, so that people who had been killing each other could begin working together to build a society." RTI's mission allows Stephen Pereira to do just the sort of work he wants to be doing. "I'm excited by our prospects for expanding RTI's presence in this part of the world," he says. "El Salvador is a great start, and we're attracting the best and brightest of the locals—well-respected professionals—to join the RTI team. We're already looking to the possibility of a regional office farther south."

▶ ▶ ▶ B R O A D E N I N G K N O W L E D G E A N D S K I L L S

Beyond basic subsistence, education and training are perhaps the most powerful forces available to better the human condition. Through our ability to teach others to deliver services, RTI continues to expand its reach in offering tools to improve the lives of people around the world.

Distance learning ▶ In the past year RTI expanded its support to the U.S. Army Armor Center at Fort Knox, Ky. Students at the University of Mounted Warfare are issued notebook computers that give them simulation capability and access to references and class materials. To capitalize on these resources, RTI is working as a part of a larger team to develop distance-learning lessons that will reduce the amount of time that students need to attend resident classes.

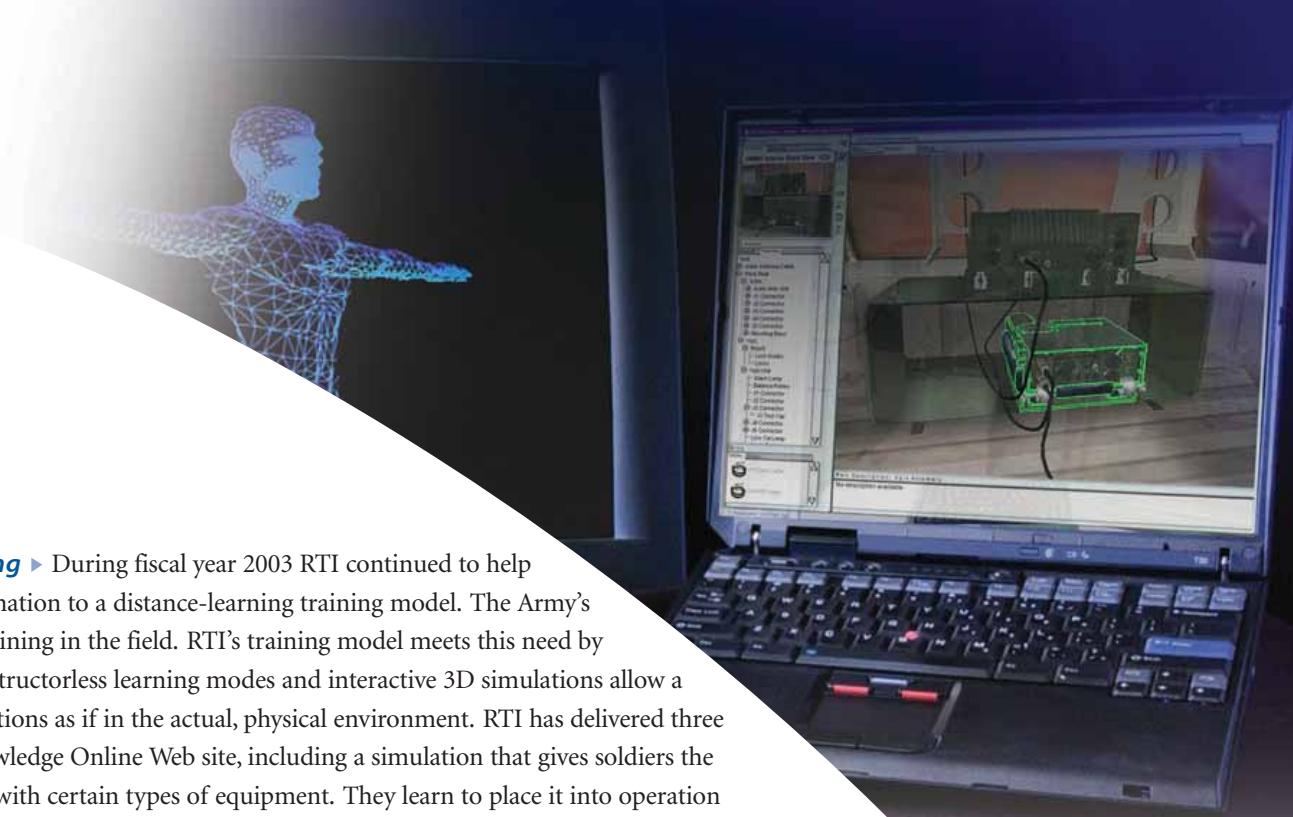
education surveys

technology-assisted learning

distance learning

early childhood study

education reform in Pakistan



Technology-assisted learning ▶ During fiscal year 2003 RTI continued to help enable the U.S. Army's transformation to a distance-learning training model. The Army's new focus: to provide in-unit training in the field. RTI's training model meets this need by utilizing the best of the Web. Instructorless learning modes and interactive 3D simulations allow a user to experience learning situations as if in the actual, physical environment. RTI has delivered three applications for the Army's Knowledge Online Web site, including a simulation that gives soldiers the ability to familiarize themselves with certain types of equipment. They learn to place it into operation and to troubleshoot and repair it, as necessary.



Other successes include interactive 3D applications on the Pocket PC, such as STATCare, a hand-held training system that helps Army medics treat battlefield casualties during the first critical hour post-trauma. STATCare, the military counterpart to RTI's VirtualEMS, allows a user to diagnose and "treat" a virtual patient. STATCare represents a further advance in RTI's ongoing efforts to expand the boundaries of interactive 3D simulations. This year developers added life-like animations, such as breathing and facial expressions, and enhanced the ability of the caregiver (the trainee) to have a dialogue with the patient by incorporating the latest technologies for human body animation used by the video game industry.

Improvements in 2003 to RTI's STATCare, which was developed to help Army medics treat battlefield casualties, made the virtual patients more lifelike.

Early Childhood Study ▶ In April 2003 the U.S. Department of Education's National Center for Education Statistics awarded RTI the Early Childhood Longitudinal Study, Birth Cohort, which is expected to last four years. The study's primary goal is to provide comprehensive and reliable data to better understand children's early development—their preparation for school, key transitions during the early childhood years, experiences from preschool through the elementary grades, and the impact of these early experiences on their later educational development.



Education surveys ▶ In May 2002, RTI was awarded a contract to conduct the 2004 National Study of Faculty and Students (NSoFaS), also for the U.S. Department of Education's National Center for Education Statistics. A continuation of a series of comprehensive, nationwide postsecondary studies, NSoFaS is being conducted in collaboration with MPR Associates, Inc., an education consulting firm in Berkeley, Calif. Expected to last 10 years, the study will provide ongoing information about a number of issues related to postsecondary education, including faculty workloads, salaries, and future plans, as well as educational costs and the distribution of student financial aid.

NSoFaS provides ongoing information about postsecondary education.

Education reform in Pakistan ▶ The U.S. Agency for International Development has awarded RTI a four-year cooperative agreement to implement Pakistan's Education Sector Reform Assistance program. Under this agreement, RTI has overall management responsibility and will work with a consortium of international and Pakistani partners in policy, decentralization, teacher training, literacy, and public-private partnership development. The program pursues a number of national policy initiatives and focuses field activities in selected districts in Sindh and Baluchistan provinces.



*Jean Williams, Ph.D., Director,
Center for Research in Education*



RTI developed special training kits for the Wee Wheezers® program.

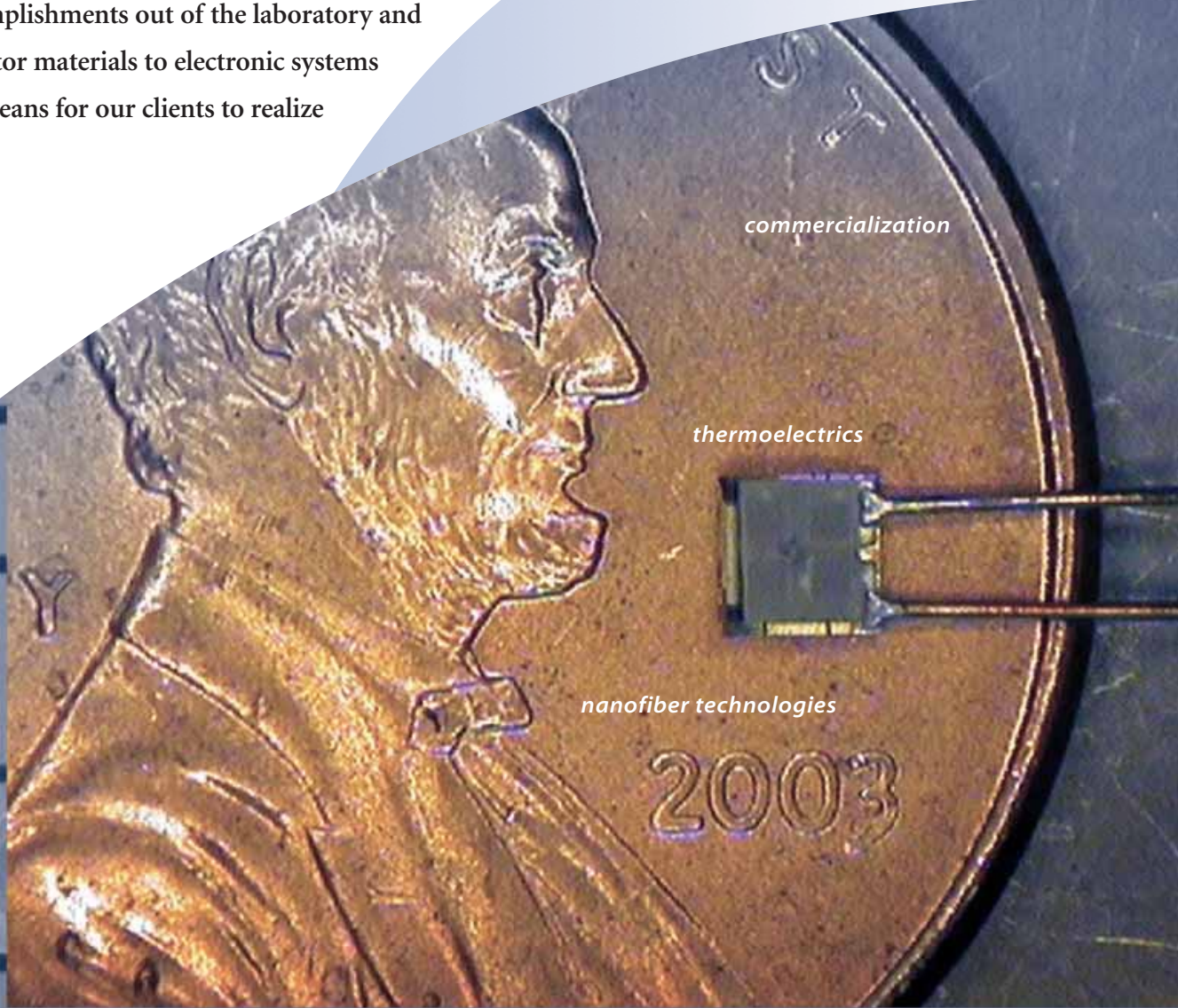
Jean Williams brings to her job a lifetime commitment to finding better ways to support learning for both children and adults. At RTI, she leads a large group of talented educators engaged in taking on the most challenging issues in contemporary education. With a background in early childhood education, Williams is well prepared to evaluate initiatives such as Wee Wheezers®, an education program for parents with young children who suffer from asthma. Wee Wheezers translates asthma research into an accessible format to help parents and children cope with this growing childhood health problem.

Williams is particularly excited about a project funded through the U.S. Department of Education's Migrant Education Program, which studies ways to determine high school graduation rates for children of migrant workers. "It's a wonderful study with all sorts of potential to find out if we're properly serving the needs of those kids."

Williams exemplifies the steadily growing trend toward technology-assisted learning. As former senior educational consultant and project manager at PRC, Inc., she created the first electronic bulletin board for the U.S. Department of Education. She believes a technology-rich approach succeeds best when different functions work together. "I really appreciate RTI's commitment to cross-unit collaboration," she explains. "We can so easily join forces and, by combining our efforts, leverage the work we're all doing." Williams believes that timely, thorough research findings make it possible to encourage and extend the best education techniques where they are needed most, and she feels this is what gives heart and soul to RTI's oft-stated mission of improving the human condition. "The people here understand deeply what this work is all about," she says. "I can count on colleagues from across RTI to give support not just with words, but with actions."

▶ ▶ ▶ LEADING IN TECHNOLOGY APPLICATIONS

Technology has the potential to be the most powerful beneficial force in human history. For nearly half a century, RTI's technological leadership has brought the most advanced science and engineering accomplishments out of the laboratory and into the marketplace. From semiconductor materials to electronic systems and technology transfer, we create the means for our clients to realize their own visions of a better world.



commercialization

thermoelectrics

nanofiber technologies

clean air

fuel desulfurization

RTI is developing ultra-small (shown left, on penny) thermoelectric coolers for lasers and computer chips using superlattice materials.

Thermoelectrics ▶ RTI's Rama Venkatasubramanian, Ph.D., and his team (right) have achieved significant breakthroughs recently in thermoelectrics, a field that has seen few advances over the past several decades. At the spring 2003 meeting of the American Chemical Society, Dr. Venkatasubramanian demonstrated a promising thin-film superlattice technology. The prototype device, about the size of a large postage stamp, consists of a special semiconductor chip encased between two thin translucent crystals. Its performance approaches the cooling efficiency of current thermoelectric devices but in a much smaller package.

Among the technology's many potential applications are more reliable solid-state refrigerators and air conditioners, as well as more efficient and compact power sources. Based on successful results in transitioning the superlattice technology to power conversion, Dr. Venkatasubramanian's team has embarked on a significant initiative for the U.S. Department of Defense to develop high-efficiency power conversion technologies.



Scientist Brian Turk loads zinc titanate sorbent into a laboratory reactor that removes sulfur from coal gas.

Fuel desulfurization ▶ Removing sulfur species from carbonaceous fuels before they are burned eliminates a major air pollutant, sulfur dioxide, before it can enter the atmosphere as a byproduct of the burning process. Until now, conventional desulfurization processes have been energy-inefficient and expensive. In a significant advancement of RTI's ongoing research in this area, Raghubir Gupta, Ph.D., and his group have teamed with ChevronTexaco and Kellogg Brown & Root for a pilot-scale field test of the proprietary RTI-3 sorbent and Direct Sulfur Recovery Process. Operating at modest temperature conditions, warm gas desulfurization significantly reduces the amount of fuel gas cooling required, thus improving the economics and maintaining the efficiency of the process. A successful demonstration will pave the way for widespread use of coal and petroleum coke gasification for producing electric power, clean transportation fuels, and hydrogen.



Nanofiber technologies ▶ In the United States, a clear beneficiary of RTI's work with filtration standards is homeland security. Other advances—those in polymer science, for example—also have similar widespread usefulness. Nanofibers are microscopic synthetic fibers that can be used as biological/chemical sensors for environmental and military applications. Some of the novel polymer film technologies currently being studied at RTI include high-barrier polymer films as well as imprinted films and membranes. RTI also has a state-of-the-art electro spray facility and conducts both pure and applied research into nanocomposite films and the electrospinning of nanofibers.

Clean air ▶ For some time, RTI has pioneered research into the most troublesome of atmospheric pollutants, particles so tiny—2.5 micrometers or less—they can penetrate into the deepest lining of the human lung. RTI's expertise in aerosol filtration, gas absorption, and microbiology has resulted in the development of widely accepted performance-based filter test methods for testing the efficiency of building ventilation systems. In addition to improving indoor air quality, this work is now being applied to homeland security. Early last year RTI began research related to the EPA Safe Building Program; this work verified the effectiveness of commercially available technologies for cleaning indoor air contaminated with biological or chemical agents.



Teri Walker adjusts the flow rate of polymer solution during an experiment to electrospin polymer nanofibers.

Commercialization ▶ One of RTI's longest-running projects, begun in the 1960s, has involved helping NASA extend the benefits of space technologies to industry and the general public. Today, RTI also helps numerous global corporations, universities, and government laboratories leverage their technology assets, offering a full range of technology commercialization services—all with an eye toward maximizing return on investment.

In recent years, RTI has focused on commercializing the results of our own research as well. In 2003 we conducted two internal commercialization workshops to explore the potential for moving advanced technology products out of the nonprofit sector and into the “real” world. Ideas flew thick and fast—a cockpit display; improved landing safety for general aviation pilots; materials made of tiny polymer fibers. RTI will invest in the most promising of these ideas.

A notable RTI success story is Ziptronix, RTI's commercial spin-off venture. In 2003 the company moved to its first real production facility, off the RTI campus. Ziptronix's most recent technological advance—temperature-compensated piezoelectric substrates—will improve frequency stability for such applications as cell phones, high-frequency local area network (LAN) devices, and other wireless communication devices. In recognition of its early success, Ziptronix won the Technology of the Year Award in 2003 from the North Carolina Council for Entrepreneurial Development.



With RTI's help, Bombardier licensed rights to NASA's high-temperature aluminum alloy to improve piston durability in its new E-TEC Johnson and Evinrude engines, which require no scheduled maintenance for the first three years of operation.

*Jesko von Windheim,
Entrepreneur in Residence*



RTI has developed a series of internal workshops to help technical innovators jump-start their efforts to turn promising ideas into viable business opportunities.

The last year has been a busy one for Canadian-born Jesko von Windheim, RTI's recently appointed entrepreneur in residence. In his first year in the position, von Windheim developed a portfolio of promising start-up opportunities within RTI. He organized two commercialization workshops, encouraging anyone within RTI to come forward with projects that showed promise as new business opportunities. The workshops showcased projects in many areas, including thermoelectrics, data privacy, nanofibers, and patient safety, among others. The broad range and inclusiveness of the workshops reflect von Windheim's style. "Good people with good ideas, wherever you can find them, are more important at this stage than simply new technology," he explains.

Von Windheim came to RTI with a strong background in materials science and semiconductors, fields alive with commercial possibilities. Having helped start four companies in his former position at MCNC, he is well situated to understand the basic challenge of commercialization—moving from a technical breakthrough to a point where specific applications can meet customer needs. "Commercialization isn't a simple linear process," he notes. "Particularly in the early stages, it's more like a puzzle, with pieces poorly defined and constantly changing." For von Windheim, RTI has the ideal environment to nurture this delicate process. "The overall intelligence of our employees, the diversity of the technology here—this is an amazing organization," he says. "It's still a real challenge to resolve the differences between a research culture and a start-up culture, to get them working together. But RTI is tolerant of different perspectives. I couldn't ask for better support, or better people to be working with."

▶ ▶ ▶ APPLYING RESEARCH TO IMPROVE THE ENVIRONMENT

When the environment thrives, we thrive. When it suffers, we suffer. Ironically, it is a byproduct of human life—pollution—that causes much of this suffering. RTI's human-centered mission involves serious attention to the environment, its needs, its products, and the ongoing threats to its future, worldwide. We provide a wide range of applied research and technical services to government and industry to solve environmental problems, both domestically and internationally.



Particulate matter (PM_{2.5}) analysis ▶ The U.S. Environmental Protection Agency has directed that particulate matter with a diameter of 2.5 micrometers or less must be monitored and controlled, due to its potential as a significant health threat. A national leader for PM_{2.5} chemical speciation studies, RTI was selected in July 2003 as EPA's sole contractor for the chemical speciation of PM_{2.5} filter sample analysis. The purpose of the project is to assist state and local agencies in the operation of networks that collect and analyze samples of these airborne particles. Due to EPA's stringent standards, RTI has one of the few labs in the U.S. that can perform this service. The EPA contract is a follow-on to a contract that RTI has held for the past four years. The project has grown significantly in that time, and RTI currently provides chemical speciation support to more than 235 PM_{2.5} monitoring sites throughout the U.S., Puerto Rico, and the Virgin Islands.

Dave Hardison performs ion analyses for the EPA PM_{2.5} chemical speciation project.

U.S. EPA has directed that particulate matter with a diameter of 2.5 micrometers is a potential significant health threat.



Children's health ▶ RTI is in its second year of a five-year contract with EPA to study environmental risks to children's health. EPA plans to evaluate air and drinking water for pesticide residuals and other environmental contaminants. The contract includes long-term maintenance and follow-up of a cohort, and may also support the National Children's Study, planned by the National Institute of Child Health and Human Development, the Centers for Disease Control and Prevention, and the National Institute of Environmental Health Sciences.



Testing for lead and asbestos ▶ Lead and asbestos are two prominent areas of concern to environmental and human health researchers. In 2003 RTI initiated the second five-year renewal of the original Environmental Lead Proficiency Analytical Testing (ELPAT) program contract with the American Industrial Hygiene Association. As part of this program, RTI prepares environmental lead proficiency testing materials and sends them to more than 250 laboratories around the world on a quarterly basis. ELPAT is one of only two national lead laboratory accreditation programs currently recognized by EPA.

For more than 20 years, RTI has been a leader in asbestos proficiency testing programs by offering independent, third-party testing of (and for) other labs. In 2003 we validated and distributed more than 6,600 test samples to more than 500 commercial, medical, military, and industrial hygiene laboratories in 46 states and more than a dozen countries. Our scientists are currently assisting the EPA and collaborating with national experts to develop a test method to address the presence of asbestos in insulation containing vermiculite, a mica-like mineral. The vermiculite mined in Libby, Mont., for more than 30 years—and now present in nearly a million U.S. homes—has caused death or fatal disease in nearly 600 residents of that small town.

Treated wood ▶ Most of the wooden decks and play structures in the U.S. are treated with a preservative, usually chromated copper arsenate (CCA). Due to growing concern among environmentalists, homeowners, and the wood treatment industry, researchers at RTI studied the possibility that contact with CCA-treated wood might result in exposure to arsenic. The study results, released in October 2003, indicated that CCA is transferred to the hand through contact with treated wood. These and other findings were used by EPA in its recently published risk assessment for CCA-treated lumber, which included recommendations on how parents and caregivers can reduce the risk to children. Starting in 2004, the building industry will no longer use CCA to preserve lumber intended for play equipment and decks.





Karin Foarde, Program Director,
Microbiology



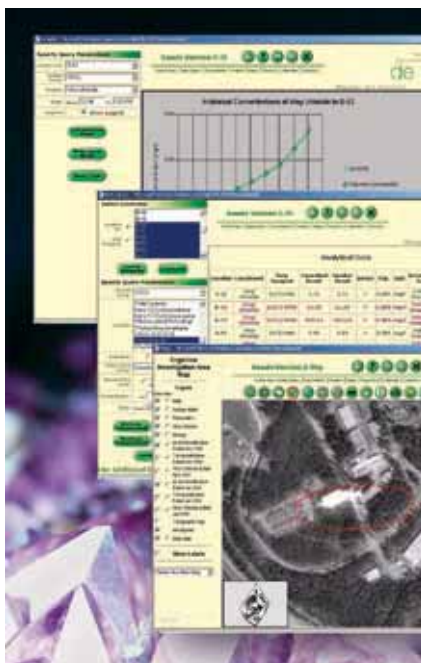
Electron micrograph of a potentially allergenic mold, Aspergillus, growing on gypsum wallboard in a daycare center.

Microbiologist Karin Foarde never dreamed her work would become the center of an intense national security effort. She was well aware of the military components of her research, but in the aftermath of the bioterrorist anthrax attacks in 2001, the need for information on biological warfare agents has become acute. Most of Foarde's career has been focused on the study of less mission-critical environmental issues. "Microorganisms are a naturally occurring part of the environment," Foarde says. "But trapped and growing inside an artificial human environment, like the ventilation system of a building or workplace, they can cause a variety of health problems such as allergy or asthma."

From a microbiologist's perspective, many of the physical characteristics and behavior of natural contaminants are not unlike that of the organisms used as weapons in the terrorist's arsenal. Thus, Foarde's work helps provide insight about several security-related issues, such as how contaminated environments can be detected and sampled, as well as how large spaces can be decontaminated and protected against future attack.

An extensive background in academic research made Foarde a good fit for RTI. "My work was in bio-aerosols, and it was more occupational and applied than basic. I like that." At RTI, she says, "the level of collaboration is stimulating. I work with a lot of groups across many disciplines, such as engineering and chemistry, and this allows me to address problems that can't be solved by one discipline." Because her group does primarily applied research, she explains, "we get to see the information get to the people who need it quickly."

Risk assessment ▶ Last year RTI successfully completed the final option period of its contract with EPA's Economics, Methods, and Risk Assessment Division (EMRAD), a contract that RTI has held for the past five years. The EMRAD contract provides the EPA Office of Solid Waste with the expertise necessary to manage hazardous and non-hazardous solid waste and ensure that it does not pose a risk to human health and the environment. Last year alone, RTI completed more than a dozen projects that included innovative research into the uptake and accumulation of chemical contaminants in beef and milk (i.e., biotransfer); a risk assessment of chemicals used by the dyes and pigments industry; and a health and ecological risk screening of chemical contaminants found in coal combustion residues. EPA awarded RTI a follow-on contract in July. EMRAD's focus is shifting away from regulatory assessment toward the development of risk-benefit methods that integrate risk assessment and economics into a single decision-making framework.



Web-based mapping tool ▶ Geode™ is RTI's Web-based data querying and mapping tool that provides instant access to environmental data for use in decision making, analysis, compliance support, and presentations. It makes powerful Web-based geographic information system and database operations available to a user with nothing more than a browser. Geode capabilities include interactive mapping, statistics, document management, and project scheduling. Users log in from anywhere, query databases at different facilities, and easily toggle between maps and databases. Results can be displayed on graphs, maps, or tables and can be exported for use in other software. The Geode tool leverages the economy of the Web, providing data access at a mere fraction of the cost to develop an alternative system.

RTI's UAE office ▶ RTI has opened an office in Dubai, United Arab Emirates (UAE), to provide badly needed environmental services both to the UAE and also to the entire Middle East. With more than 20 years' experience in environmental research, RTI has the capabilities to help the UAE effectively address the region's environmental problems. Not unlike North Carolina's Research Triangle Park, the UAE boasts proximity to some of the region's most advanced institutions of higher learning. RTI expects to partner with these institutions to train and hire staff for the office, working with MenaLink, Inc., a company that accelerates business development in the Middle East–North Africa (MENA).

RTI was founded by three renowned universities in close proximity to each other—North Carolina State University, Duke University, and the University of North Carolina at Chapel Hill. Today, RTI maintains a fruitful partnership with the research functions of these institutions, as well as with dozens of other universities around the country and the world.



technology development

proteomics research

evidence-based practice center



Technology Development Initiative ▶ Universities are fertile ground for the invention of new technologies. Recognizing that those inventions can stimulate technology-based economic development, the University of North Carolina (UNC) system embarked on a three-year project to develop an effective technology transfer infrastructure for its 16 campuses. The Technology Development Initiative (TDI), funded by the National Science Foundation and the UNC Office of the President, examined capabilities and resources that support university technology transfer that could be shared openly across diverse organizations.

To date, more than 1,000 contacts with faculty and staff, entrepreneurs, investors, and economic development organizations have helped produce a new appreciation of the tremendous potential of facilitating technology transfer throughout the UNC system. TDI more clearly defined an expanded role for universities relative to the state's economic growth. TDI is helping campus-bred technologies reach their full potential, while encouraging new partnerships among private and public organizations that will grow and generate future initiatives.

RTI played a key role in this initiative, providing a broad-based needs assessment, long-term strategic planning, customized training, and technology assessments. TDI exemplifies one of the most creative approaches undertaken to enhance the potential for new innovations and to boost regional economic development. RTI's experience with TDI and similar efforts puts us at the forefront of managing and developing innovation in an academic environment.

Proteomics research ▶ In recent years, genetic research—specifically, gene sequencing—has profoundly altered the life sciences. Genes influence cells and entire organisms through a complete complement of cellular proteins known as the proteome. These proteomes can be used to query the state of a living cell, enhancing our understanding of exactly how the gene and its environment affect the visible properties of an organism.

In 2003 RTI began working with researchers at North Carolina State University to develop new methodologies for protein quantification, identification, and separation. The potential benefits are enormous: proteomics is gaining importance in addressing the fundamental problems of biology, including drug discovery, toxicology, and the detection of bioterrorism agents. In fact, several companies are currently negotiating the licensing rights for some of this groundbreaking technology.





Robert Helms, Ph.D., Director,
Center for Strategic Initiatives



In early 2003 the Agriculture Disaster Research Institute, a partnership between RTI and several universities, provided training to first responders on how to handle contaminated livestock. The training was held at the College of Veterinary Medicine at North Carolina State University.

For Bob Helms, the prospect of a cataclysmic agricultural disaster, natural or terrorist-inspired, strikes close to home. Helms grew up on a ranch in Arkansas and is a rancher himself. He is also accustomed to planning for the future, having run Strategic Planning Offices for the U.S. Army. It makes sense that his background and work history would come together in the creation of the Agriculture Disaster Research Institute (AgDRI). The mission of AgDRI is to address the pressing issues around any agricultural catastrophe: how to respond most effectively; how to recover, physically and economically; and how to prevent such disasters in the first place. As a joint partnership between RTI and several major universities, AgDRI represents what Helms thinks is the best way to take on problems of this scope: bring the resources of industry and great research institutions together in a single team.

The AgDRI experience has contributed to the development of a second major initiative—the North Carolina Partnership. With significant involvement from the University of North Carolina system, the partnership brings together the technical capabilities of a number of the state's public and private universities, providing resources far beyond the scope of what any single institution could provide. RTI oversees the execution of the partnership's projects. "This way," says Helms, "we can pursue and win large, complex projects that no institution on its own would, or could, go after."

At RTI, Helms has found something close to his dream job. "It's exciting business and it's important," Helms says. "RTI is part of the national effort to protect our American food supply and the \$230 billion business that agriculture has become. It's satisfying to be supporting that effort."

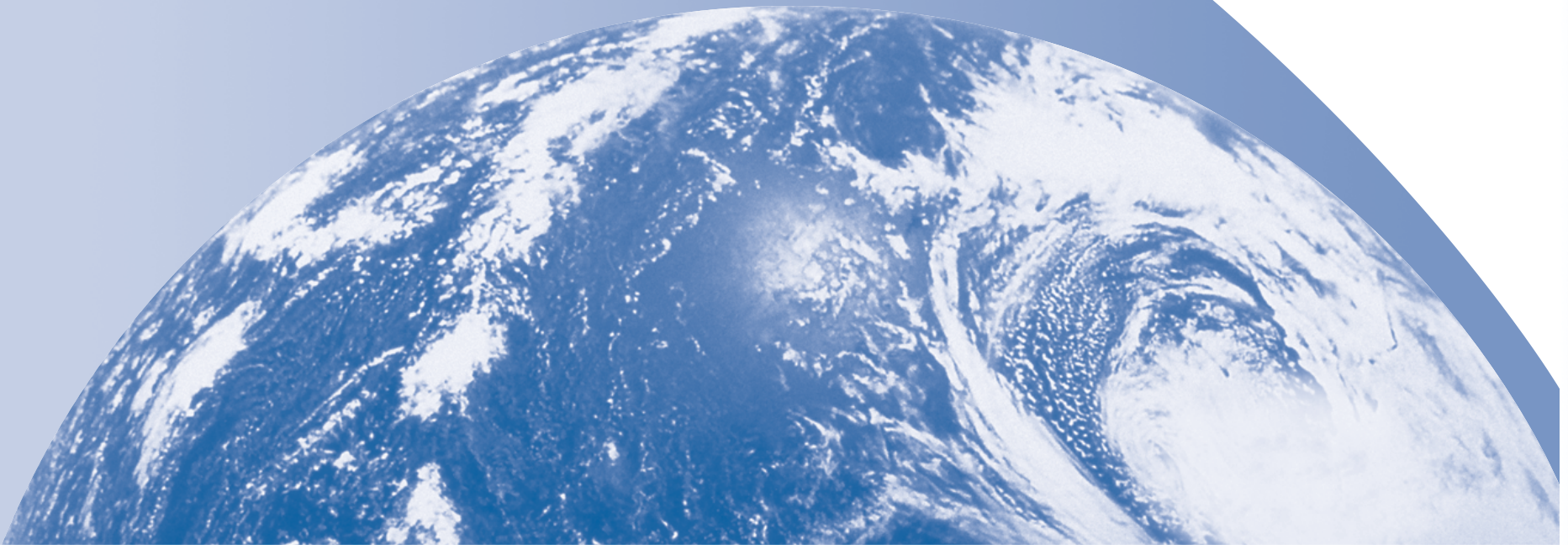
Evidence-based Practice Center ▶ To be consistently effective, health care decisions must be based on correct methodologies and good scientific evidence. RTI's Evidence-based Practice Center (EPC), a joint venture with UNC-Chapel Hill, produces research that forms the basis for numerous findings and conclusions valuable for both public and private health organizations. Health care providers rely on the ongoing work of the EPC to make practical and informed decisions involving practice guidelines, performance measures, and quality improvement tools.

Most recently, EPC work confirmed the significant relationship between low literacy skills and poor health status and noted that some interventions to simplify printed materials or use visual aids will improve patients' knowledge of diseases and treatments. New RTI research also formed the basis for a 2003 Agency for Healthcare Research and Quality advisory that many doctor-prescribed treatments for bronchitis are ineffective. The box at right shows the 2003 EPC findings on behalf of the U.S. Preventive Service Task Force.



2003 EPC Findings

- ▶ Reaffirmed the recommendation of blood pressure screening for all adults over the age of 18
- ▶ Questioned the benefit of early screening for dementia and determined that more research is needed
- ▶ Supported regular screening for cervical cancer in women age 21 to 65
- ▶ Affirmed the importance of diabetes screening for adults with high blood pressure and high cholesterol levels



During 2003 we expanded our corporate resources by forming an alliance with a long-term partner, by opening two international offices, and by working to apply information technology in a wide range of international computing environments. Also in 2003, we enhanced our ethics training and leadership development programs, expanded the RTI Fellows program, and added considerable talent to our organization.

RTI-SAS alliance ▶ In October 2003 RTI entered into a nonexclusive, enterprise-wide, strategic alliance with SAS Public Sector that will allow RTI scientists to use the entire range of SAS technology for research and analysis. This alliance, which formalizes a collaborative relationship that has been in place for some time, capitalizes on the capabilities of both organizations. It joins SAS's business intelligence with RTI's state-of-the-art technology, research capability, and commitment to bettering the human condition.

International offices ▶ In 2003 we added two international offices, expanding our reach around the globe in a significant way. In addition to nine offices in the U.S., including our headquarters in Research Triangle Park, we now have offices in five international locations: Jakarta, Indonesia; Manchester, England; Pretoria, South Africa; San Salvador, El Salvador; and Dubai, United Arab Emirates. The latter two were added in 2003. From our Dubai office, we will provide environmental services to the United Arab Emirates and then to the rest of the Middle East (see page 26). From our San Salvador office, we will provide assistance with health and education programs, environmental improvements, and Internet technology in El Salvador and surrounding nations (see page 12).

Information technology ▶ Building on 20 years of experience, in 2003 RTI further expanded its ability to provide information technology (IT) in challenging international environments. Many developing countries grapple with weak education systems, limited resources, government corruption, and telecommunication monopolies protected by powerful political interests. These and other factors limit their capacity to leverage IT to accelerate economic development.

Perhaps the biggest challenge RTI's information technology staff faced in 2003 was in Iraq. The country's lack of basic infrastructure meant limited access to electricity, transportation, and telephones, making progress difficult. However, in approximately six months, our staff installed wireless computer networks in RTI offices in 17 Iraqi governorates. These networks rely on satellite Internet connections, which provide access to the Web, e-mail, and telephone lines. A project extranet site on the Research Triangle Park campus allows researchers there to share files and reports with those working in Iraq.

Other recent information technology projects included the Romania Local Government Assistance Program, in which RTI helped create a web site that will be used to publish all of the

government's program manuals. In addition, an online forum on the site enables a wide-ranging discussion of topical issues. In Russia, RTI outfitted city governments with individually designed, computer-based systems to carry out complex financial objectives and tasks, such as budget analyses, needs assessments, and purchasing plans.

In Africa, RTI made strides in helping to strengthen local government by creating an interactive web site, ExecNet (African Executive Office Network). ExecNet is a network of influential civic professionals committed to the principles of democracy and good governance. Similarly, Dialogue on Democratic Decentralization (DDialogue) provides African civic leaders with a means to engage in strengthening local government effectiveness in public finance, local revenue generation, and public-private partnerships. In Zambia, RTI is working with the University of Alabama at Birmingham and the Bill and Melinda Gates Foundation to implement a perinatal record system for public health clinics in Lusaka.



In Africa, RTI created an interactive website, ExecNet.

Ethics ▶ To continue to reinforce RTI's long-standing commitment to maintaining ethical work practices, we launched a series of online courses in 2003 to improve our staff's knowledge of ethics and compliance issues. These courses are in addition to our intranet site devoted to ethics and our ethics helpline and e-mail. The online courses included such topics as doing business with integrity, workplace conduct, confidentiality, conflict of interest, and mutual respect.

Leadership ▶ In 2003 RTI launched the Leadership Development Initiative, focused on developing excellence in leadership. This RTI-designed program supports our commitment to the development of leadership and management competency development and provides additional growth opportunities for our staff.

RTI Fellows ▶ The RTI Fellows program was established in 2001 to provide professional opportunities for exceptionally talented staff committed to science in support of RTI's mission to improve the human condition. Fellows are active in research projects, serve as RTI-wide consultants in key areas of scientific accomplishment, and provide strategic technical and scientific leadership as part of RTI President Victoria Haynes' Scientific Advisory Council.

Three new RTI Fellows were named in 2003: Kathleen N. Lohr, Ph.D., Distinguished Fellow in Health, Social, and Economics Research; Joshua M. Wiener, Ph.D., Fellow in Health Economics Research; and Derick W. Brinkerhoff, Ed.D., the first RTI Fellow in the International Development Group.

New Staff ▶ In 2003 RTI hired over 350 new staff members, including:

Monika K. Aring – Team Leader, Economic and Workforce Development, and Senior Policy Analyst. Prior to joining RTI, Aring was director of the Center on Education and Training for Employment at Ohio State University, where she was responsible for the overall strategic leadership, management, and conceptual scope of grants and contracts. Previously, Aring was director of the Center for Workforce Development at the Education Development Center. Her extensive technical assistance includes work with USAID, the Asian Development Bank, the U.S. Departments of Education and Labor, and several multinational corporations.

Peter Benedict, Ph.D. – Chief of Party for the Iraq Governance Project, International Development. Dr. Benedict comes to RTI from Chemonics International, where he was senior manager for business development in the Middle East. Prior to that, he established the statutory position of chief information officer at USAID. During a 24-year career at USAID, he served as mission director in four posts in Africa. Also, as vice president at Family Health International, Dr. Benedict was responsible for planning and development.

Derick W. Brinkerhoff, Ed.D. – RTI Fellow in International Public Management. Prior to joining RTI, Dr. Brinkerhoff was a principal social scientist at Abt Associates Inc. Previously, he was on the faculty of the University of Maryland at College Park, worked for USAID, and was an adjunct professor at Johns Hopkins University and George Washington University.

Charles E. Costello, J.D. – Deputy Chief of Party for the Iraq Governance Project, International Development. Before joining RTI, Costello was the director of the Democracy Program at the Carter Center in Atlanta, where he managed worldwide election monitoring, rule of law, and civil society programs. At USAID, Costello was director of the Center for Democracy and Governance and served as mission director for El Salvador, Guatemala, and Ecuador.

W. Douglas Evans, Ph.D. – Director of Health Promotion Research. Before joining RTI, Dr. Evans was the managing director of Health Communications Research and Evaluation at the American Institutes for Research. He evaluated the National Cancer Institute’s ASSIST and other social marketing interventions and directed tasks within the Evaluation Coordinating Center for the American Legacy Foundation, under subcontract to RTI, including evaluating exposure to the “truth” national media campaign.

Allen W. Mangel, M.D., Ph.D. – Director of Medical Services, RTI Health Solutions. A gastroenterologist with extensive experience in clinical research, Dr. Mangel comes to RTI-HS from Salix Pharmaceuticals, where he served as vice president of research and development. Prior to that, he was worldwide head of GI at GlaxoSmithKline.

Bernadette M. Marriott, Ph.D. – Assistant Vice President, Global Strategic Planning, International Development. Prior to joining RTI, Dr. Marriott was a special consultant to the Food and Nutrition Board, the National Academies. Previously, she held upper management positions at the Burroughs Wellcome Fund, Northern Arizona University, the National Institutes of Health, and the National Academies. She is currently an adjunct professor of nutrition at UNC-Chapel Hill.

Josephine A. Mauskopf, Ph.D. – Global Director of Health Economics, RTI Health Solutions. In 2000 Dr. Mauskopf spearheaded the development of RTI-HS, which was officially launched as a new RTI business unit in May 2001. She comes back to RTI from MEDTAP International, Inc., where she was a vice president and senior research leader.

Frank J. Method – Director, Education Policy Group, International Development. Method directed the Washington Office of UNESCO and was a senior policy advisor at USAID. He has sector work experience in over 20 countries, ranging from early childhood development through national education sector planning and policy reform. His current focus is on education in post-conflict situations.

A.K. Nandakumar, Ph.D. – Senior Health Economist, International Development. Dr. Nandakumar, who specializes in health care financing, comes to RTI from Abt Associates Inc., where he was a principal associate and served as resident advisor in Egypt for the USAID-funded Data for Decision-Making project. In addition, Dr. Nandakumar served in the Indian Administrative Service for 17 years and was on the faculty at Harvard University. He currently has an appointment as an associate professor at Brandeis University.

Alan H. Staple – Vice President, Health Sciences. Staple has 20 years of senior executive experience, managing software, life sciences, and technology businesses. He was most recently founder and chief executive officer of a company that develops software and services for the management of temporary clinical staff. Before that, he served as president and CEO of Huntingdon Life Sciences, one of the world's largest contract research organizations.

David A. Uglow – Manager of Interactive Voice Response Services, Research Computing Division. Prior to joining RTI, Uglow was associate director of Survey and Information Services for Mathematica Policy Research. At the Bureau of Labor Statistics he was branch chief for Data Collection Research, developing the field data collection software for the Consumer Price Index.

Joshua M. Wiener, Ph.D. – RTI Fellow and Director of Aging, Disability, and Long-Term Care. Prior to joining RTI, Dr. Wiener was a principal research associate in the Health Policy Center of the Urban Institute. He directed projects analyzing changes in state health policies; the long-term care workforce; Medicaid eligibility for the aged, blind, and disabled; and Medicaid home and community-based services.

Jesko von Windheim – Entrepreneur in Residence. Before joining RTI, von Windheim was vice president and general manager of the MEMS business unit at JDS Uniphase in Research Triangle Park. Prior to that he was vice president of marketing and business development at Cronos Integrated Microsystems before the sale of that company to JDS Uniphase in 2000. Cronos was one of four companies in electronics and information technologies that von

Windheim helped start out of MCNC in RTP, where he was manager of business development.

Margaret A. Zahn, Ph.D. – Director of Crime, Justice Policy, and Behavior. Dr. Zahn comes to RTI from the U.S. Department of Justice, where she was director of the Violence and Victimization Division. Prior to her service with the Department of Justice, Dr. Zahn was the Dean of the College of Humanities and Social Sciences and a professor of sociology at North Carolina State University.

Patents ▶ RTI was awarded 12 patents in fiscal year 2003, bringing our total number of U.S. patents to over 130. The patents cover a range of disciplines and are indicative of the wealth of RTI's intellectual capital. Patents issued in FY03 include:

- ▶ Method of promoting smoking cessation
- ▶ Plasma processing system and method
- ▶ Kappa opioid receptor ligands
- ▶ Cascade cryogenic thermoelectric cooler for cryogenic and room-temperature applications
- ▶ Method of treating nicotine addiction
- ▶ Portable air sampling apparatus including non-intrusive activity monitor and methods of using same
- ▶ 17.beta.-amino and hydroxylamino-11.beta.-arylsteroids and their derivatives having agonist or antagonist hormonal properties
- ▶ Cocaine receptor-binding ligands
- ▶ Plasma furnace disposal of hazardous wastes
- ▶ Novel opiate compounds, methods of making and methods of use (three patents)

National Historic Chemical Landmark ▶ The American Chemical Society honored RTI and its Natural Products Laboratory with a National Historic Chemical Landmark commemorating the discovery of Taxol® and camptothecin™ by Mansukh Wani, Ph.D., and the late Monroe Wall, Ph.D. These compounds, both derived from plants through seminal research at RTI in the 1960s and '70s, are two of today's frontline pharmaceuticals in the fight against cancer. National Historic Chemical Landmarks commemorate discoveries, products, achievements, and places that have expanded the frontiers of knowledge and advanced medicine and industry.

Homeland Security Advisory Committee ▶ RTI president and CEO Victoria Haynes has been appointed to the Academe and Policy Research Senior Advisory Committee of the Homeland Security Advisory Council. Tom Ridge, Secretary of the Department of Homeland Security, created the committee to provide the council with expert advice from leaders in the field of academia, technology, and policy development.

Red Cross Annual Chairman Award ▶ The Central North Carolina chapter of the American Red Cross presented RTI with its Chairman Award for 2003. The award is the highest honor the local chapter offers and is given to a company each year that has provided a broad range of service to the Red Cross.

Arthur W. Melton Early Achievement Award ▶ The American Psychological Association presented RTI survey research methodologist Michael Schwerin, Ph.D., with the Arthur W. Melton Early Achievement Award. This award recognizes early career achievements in military psychology.

ASHRAE Fellow ▶ David Ensor, Ph.D., director of Aerosol Technology and an RTI Fellow, was named a Fellow to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). This honor has been bestowed on fewer than 1 percent of the society's 55,000 members.

President of Teratology Society ▶ Rochelle W. Tyl, Ph.D., was named 2003–2004 president of the Teratology Society,

a multidisciplinary scientific society founded in 1960 to study the causes and biological processes leading to abnormal development and birth defects at the fundamental and clinical level, as well as appropriate measures for prevention.

Editor of BMJ USA ▶ In 2003 Douglas Kamerow, M.D., became the new editor of *BMJ USA*, *BMJ*'s sister publication in the United States. (*BMJ* was previously known as the *British Medical Journal*.) *BMJ USA* is a monthly synopsis of the weekly *BMJ* and is distributed to approximately 100,000 primary care physicians.

Human Genome Society ▶ RTI's Jamie Cuticchia, Ph.D., garnered a variety of accolades in 2003 for his work in bioinformatics. In addition to being elected to the board of the Human Genome Variation Society, he was asked to join the Genome Technology Academy (GTA), a group self-described as 100 of "the most recognized members of the genomics field." He was also named one of the top three bioinformaticians in the world responsible for the success of the Human Genome Project and was nominated as last year's Genome Man-of-the-Year by GTA.

ISPE Fellow ▶ Elizabeth Andrews, Ph.D., was named a Fellow of the International Society for Pharmacoepidemiology (ISPE). She was in the first group of members selected as Fellows of ISPE, a professional society for individuals from academia, industry, and government who are active in the areas of drug safety, epidemiology, and health outcomes.

Fellow, American College of Preventive Medicine ▶ John Beltrami, M.D., has been elected a Fellow of the American College of Preventive Medicine, a national society of physicians engaged in teaching, research, or practice of preventive medicine.

Indiana University Distinguished Alumni Award ▶ Mansukh C. Wani, Ph.D., received the Indiana University 2003 Distinguished Alumni Award. The award, in existence since 1978, honors graduates with outstanding accomplishments who have used their education as a springboard to success in government service, the scientific world, nonprofits, education, or the entertainment field.

Editor-in-Chief of Value in Health ▶ Josephine Mauskopf, Ph.D., global director of health economics for RTI Health Solutions, was named editor-in-chief of *Value in Health*, the journal of the International Society for Pharmacoeconomics and Outcomes Research.

Full membership, American Society of Transplantation ▶ William Irish, Ph.D., head of statistics for RTI Health Solutions, was elected to full membership in the American Society of Transplantation (AST). Dr. Irish is one of the first statisticians admitted to AST, which is primarily composed of physicians and surgeons.

FDA Advisory Board ▶ Allen Mangel, M.D., Ph.D., global head of medical services for RTI Health Solutions, was appointed to the Gastroenterology Advisory Board of the Food and Drug Administration.

Co-chair of Workshop and Symposium Guest of Honor ▶ RTI Fellow Blake Wilson served as co-chair of the Hearing Preservation Workshop, held in November 2002 at the Indiana University School of Medicine. He was also guest of honor at the 2002 Wullstein Symposium, 3rd Conference on Bilateral Cochlear Implants and Bilateral Signal Processing, held in Wurzburg, Germany.

U.S. Environmental Protection Agency Advisory Board ▶ RTI Fellow F. Reed Johnson, Ph.D., was appointed to a Science Advisory Board panel for EPA. The panel is part of the EPA Advisory Council on Clean Air Compliance Analysis and is charged with reviewing the Third 812 Analysis, a congressionally mandated, periodic assessment of the health, esthetic, productivity, and ecological benefits and implementation costs of the Clean Air Act and associated amendments.

Award for STATCare ▶ In May 2003 Paul Kizakevich accepted an award as principal investigator on the STATCare project, a hand-held training system that helps Army medics treat battlefield casualties during the first critical hour post-trauma. Given by the Defense Modeling and Simulation Office of the Department of

Defense, the award recognized the work of the entire STATCare project team.

NASA awards ▶ NASA presented RTI's Aerospace Technology team with two awards to commend their innovative research. The Group Achievement Award was presented to Les Britt, Ph.D., Chi Nguyen, and Joe White for their contributions to the Agency's Aviation Safety Synthetic Vision Project for their work on sensor-enhanced synthetic vision technology.

The Advanced Survivability Research & Technology Award was given to RTI researchers John Finger and Larry Ticatch, RTI consultant Kevin Hertzler, and RTI subcontractor Brett Cooper of Marietta Scientific, Inc. The team worked with industry leaders and the Department of Defense to develop the foundations of a groundbreaking survivability technology for aircraft.

Telly First Place Award ▶ As a member of the Small Business Partnership Team at NASA's Langley Research Center, RTI's Sheri Beam received two prestigious awards for video and print production. She earned a First Place Award from the Telly Competition, which recognizes outstanding television commercials and programs, for an entry titled "Hallmarks of Success," which was produced in cooperation with Langley's Video Services Team. Beam was also selected for an "Award of Distinction" in print media by the Communicator Awards competition for a brochure she created and produced in cooperation with Langley's Library and Media Services Branch.

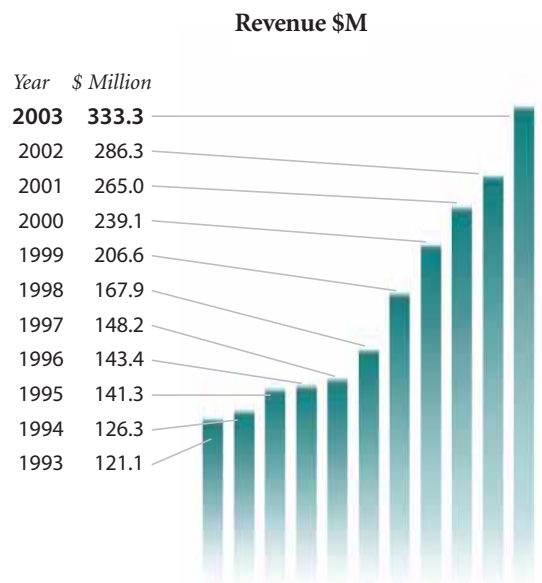
Society for Technical Communication awards ▶ RTI received Best in Show for all three sections of a competition hosted by the Carolina chapter of the Society for Technical Communication (STC): Technical Publications, Technical Art, and Online Communications. All entries receiving a Distinguished Award moved on to the international competition, where the external website won a Distinguished Award, the RTI Annual Report won an Award of Excellence, and an annual report we produced for a client won an Award of Merit.

RTI's revenue from contracts and grants totaled \$333.3 million for the fiscal year ending September 30, 2003, an increase of 16.4% over the previous year (\$286.3 million). RTI's annual revenue for carrying out research projects and providing technical services has doubled in the past five years.

Our funding comes from contracts and grants to perform research and provide technical services. RTI's clients include federal agencies, businesses, state and local governments, foundations, and international public service agencies.

Our net income increased by 91% to \$10.3 million in 2003, compared to \$5.4 in 2002. As a nonprofit corporation, RTI invests its net income in facilities, programs, and capabilities to achieve its nonprofit mission of conducting research that improves the human condition.

RTI booked \$447.6 million of new contract and grant funding during the 2003 fiscal year, compared with \$359.7 the previous year.



The following financial statements show the results from the fiscal years ending September 30, 2003, and 2002:

For the year:

Income Statement (in thousands of dollars)

	FY2003	FY2002
Revenue from research operations	\$333,270	\$286,292
Direct and indirect labor	(162,667)	(140,382)
Other direct costs	(122,461)	(108,344)
Other variable costs	(20,673)	(16,074)
Fixed costs	(17,127)	(16,053)
Net revenue from operations	10,342	5,439
Other income (net of interest expense)	(1,590)	(1,353)
Net revenue	<u>\$8,752</u>	<u>\$4,086</u>

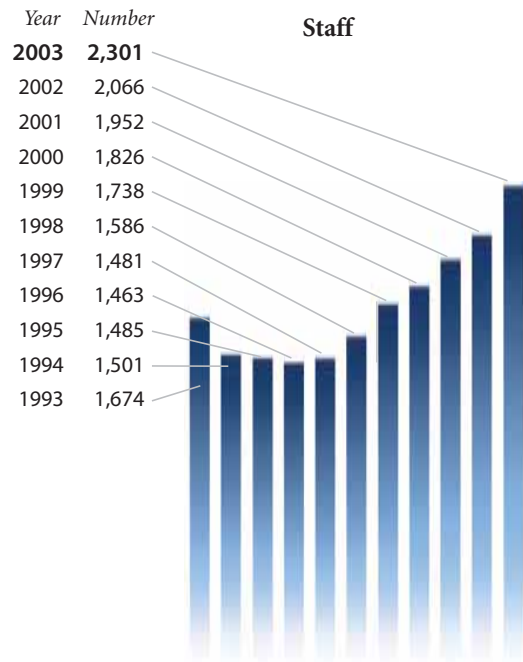
Balance Sheet (in thousands of dollars)

Assets

Current assets	\$98,371	\$75,427
Property and equipment	119,769	123,442
Accumulated depreciation	(61,091)	(61,025)
Other noncurrent assets	3,491	4,224
Total assets	<u>\$160,540</u>	<u>\$142,068</u>

Liabilities and Institute Capital

Current liabilities	\$54,624	\$44,887
Long-term liabilities	3,133	3,151
Total liabilities	57,757	48,038
Contributed capital (unrestricted)	5,061	4,879
Contributed capital (restricted)	1,584	1,330
Accumulated net revenue invested in research operations	96,138	87,821
Total Institute capital	<u>102,783</u>	<u>94,030</u>
Total liabilities and Institute capital	<u>\$160,540</u>	<u>\$142,068</u>



Staff

Revenue Sources



U.S. GOVERNMENT CLIENTS

U.S. Department of Health and Human Services, including

- ▶ Agency for Healthcare Research and Quality
- ▶ Agency for Toxic Substances and Disease Registry
- ▶ Centers for Disease Control and Prevention
- ▶ Centers for Medicare and Medicaid Services
- ▶ Food and Drug Administration
- ▶ Health Resources and Services Administration
- ▶ National Institutes of Health
 - National Cancer Institute
 - National Heart, Lung, and Blood Institute
 - National Institute on Aging
 - National Institute of Alcohol Abuse and Alcoholism
 - National Institute of Allergy and Infectious Diseases
 - National Institute of Child Health and Human Development
 - National Institute on Deafness and Other Communication Disorders
 - National Institute of Dental and Craniofacial Research
 - National Institute on Drug Abuse
 - National Institute of Environmental Health Sciences
 - National Institute of Mental Health
 - National Institute of Neurological Disorders and Stroke
 - National Toxicology Program
 - Substance Abuse and Mental Health Services Administration

Department of Agriculture
 Department of Commerce
 Department of Defense

Department of Education
 Department of Energy
 Department of Housing and Urban Development
 Department of Justice
 Department of the Interior
 Department of Transportation
 Department of Veterans Affairs
 Environmental Protection Agency
 National Aeronautics and Space Administration
 National Science Foundation
 Office of National Drug Control Policy
 U.S. Agency for International Development

PRIVATE SECTOR CLIENTS

3M Company
 Amgen
 Ardent Pharmaceuticals
 Astec Industries, Inc.
 Bayer CropScience
 Becton, Dickinson & Co.
 Bristol-Myers Squibb Co.
 The CIIT Centers for Health Research
 Closure Medical Corp.
 Dominion Resources Inc.
 E.I. duPont de Nemours & Co., Inc.
 Electric Power Research Institute
 Eli Lilly and Company
 Flanders Filters, Inc.
 Florida Power & Light Co., Inc.
 Gas Technology Institute
 GlaxoSmithKline
 The Golden LEAF Foundation
 Janssen-Ortho, Inc.
 The Johnson & Johnson Family of Companies
 MedPointe, Inc. (formerly Carter-Wallace, Inc.)
 Merck & Co., Inc.
 The National Pharmaceutical Council

New York State Electric & Gas
 Niagara Mohawk Power Corp.
 Nielsen Media Research
 Novartis AG
 Purdue Pharma LP
 Progress Energy Carolinas, Inc.
 Sigma-Tau HealthScience, Inc.
 Smith and Nephew, Inc.
 The Society of the Plastics Industry
 Sumitomo Corporation
 Underwriters Laboratories

OTHER CLIENTS

American Cancer Society
 American Industrial Hygiene Association
 American Legacy Foundation
 Asian Development Bank
 Charles Stewart Mott Foundation
 City of Durham, NC
 The Commonwealth Fund
 Cumberland County, NC
 European Bank for Reconstruction and Development
 Fan Fox & Leslie R. Samuels Foundation
 Health Canada
 Henry J. Kaiser Family Foundation
 Inter-American Development Bank
 Mayo Clinic
 National Academy of Sciences
 Robert Wood Johnson Foundation
 Rockefeller Foundation
 State of California
 State of Florida
 State of North Carolina
 United Nations
 World Bank
 World Health Organization

RTI's Board of Governors consists of up to 32 governors, five of whom hold the seat by virtue of their positions: the presidents of The University of North Carolina, Duke University, and RTI, and the chancellors of North Carolina State University and the University of North Carolina at Chapel Hill; three are specified in the bylaws: William C. Friday, Marcus E. Hobbs, and William F. Little; nine are appointed annually to represent Duke University, The University of North Carolina general administration, North Carolina State University, and the University of North Carolina at Chapel Hill; and up to 15 governors are selected from the business and scientific communities.

This listing shows the Board of Governors as of September 30, 2003. A new governance structure was instituted in November 2003.

Chairman

Earl Johnson Jr.*
Chairman
Southern Industrial Constructors, Inc.

Board of Governors

Gretchen M. Bataille*
Senior Vice President for Academic Affairs
The University of North Carolina

Molly Corbett Broad
President
The University of North Carolina

H. Keith H. Brodie
President Emeritus
Duke University

Thomas F. Darden*
Chief Executive Officer
Cherokee Investment Partners, LLC

Marye Anne Fox
Chancellor
North Carolina State University

William C. Friday
President Emeritus
The University of North Carolina

John G. Gilligan*
Vice Chancellor for Research and Graduate Studies
North Carolina State University

Ken R. Harewood
Director and Professor
Biomedical/Biotechnology Research Institute
North Carolina Central University

Victoria Franchetti Haynes*
President and CEO
RTI International

Marcus E. Hobbs*
Duke University Distinguished Service Professor Emeritus of Chemistry

William G. Howard Jr.
Independent Engineering Consultant

M. Ross Johnson
CEO
CyFi, Inc.
Chairman, Biokeys, Inc.

Nannerl O. Keohane
President
Duke University

Peter M. Lange*
Provost
Duke University

William F. Little*
(Chair, Executive Committee)
Retired Senior Vice President and University Distinguished Professor of Chemistry
The University of North Carolina

James Moeser
Chancellor
University of North Carolina at Chapel Hill

William M. Moore Jr.*
Partner
Franklin Street Partners

James L. Oblinger*
Provost and Executive Vice Chancellor for Academic Affairs
North Carolina State University

Peter M. Scott III
Executive Vice President and CFO
Progress Energy

Robert N. Shelton*
Executive Vice Chancellor and Provost
University of North Carolina at Chapel Hill

James N. Siedow*
Vice Provost for Research
Duke University

General (Retired) Gordon R. Sullivan
President
Association of the United States Army

Robert L. Taber
Vice Chancellor for Science and Technology Development
Duke University Medical Center

Tony G. Waldrop*
Vice Chancellor for Research and Economic Development
University of North Carolina at Chapel Hill

Gail R. Wilensky
Senior Fellow
Project Hope

Phail Wynn Jr.*
President
Durham Technical Community College
(*Member, Executive Committee)

Members of the Corporation

Members are the equivalent of RTI shareholders. They elect the governors, who represent the business and scientific communities.

Molly Corbett Broad
President
The University of North Carolina

Chancy R. Edwards
Knightdale, NC

John A. Forlines Jr.
Granite Falls, NC

Nannerl O. Keohane
President
Duke University

Peter M. Nicholas
Chairman of the Board
Duke University

W. Travis Porter III
Durham, NC

Thad B. Wester
Bald Head Island, NC

J. Bradley Wilson
Chairman of the Board
The University of North Carolina

ORGANIZATION



RTI International is an independent organization dedicated to conducting innovative, multidisciplinary research that improves the human condition. With a worldwide staff of more than 2,300 people, RTI is active in health and pharmaceuticals, advanced technology, survey and statistics, education and training, economic and social development, and environmental protection. Universities in North Carolina founded RTI in 1958 as the first scientific organization in and centerpiece of the Research Triangle Park. Today, RTI serves clients in government, industry, academia, and public service throughout the U.S. and abroad.

This annual report was produced by RTI's Office of Communications, Information and Marketing.



turning knowledge into practice

RTI's Headquarters

RTI International
3040 Cornwallis Road
Post Office Box 12194
Research Triangle Park,
North Carolina 27709-2194
USA
Phone: 919-541-6000
Fax: 919-541-5985
E-mail: listen@rti.org

www.rti.org

Regional Offices

Anniston

Center for Domestic Preparedness
Department of Homeland Security
Building 61
PO Box 5100
Anniston, Alabama 36202
Phone: 256-847-2256
Fax: 256-847-2020

Atlanta

Atlanta Koger Center
Oxford Building, Suite 119
2951 Flowers Road South
Atlanta, Georgia 30341-5533
Phone: 770-234-5025
Fax: 770-234-5030

Chicago

203 North Wabash, Suite 1900
Chicago, Illinois 60601-2409
Phone: 312-456-5240
Fax: 312-456-5250

Cocoa Beach

3000 N. Atlantic Avenue, Suite 108
Cocoa Beach, Florida 32931-5029
Phone: 321-799-1607
Fax: 321-799-0948

Hampton

One Enterprise Parkway, Suite 310
Hampton, Virginia 23666-5845
Phone: 757-827-1160
Fax: 757-827-3273

Rockville

6110 Executive Boulevard, Suite 420
Rockville, Maryland 20852-3907
Phone: 301-230-4640
Fax: 301-230-4647

Waltham

411 Waverley Oaks Road, Suite 330
Waltham, Massachusetts 02452-8414
Phone: 781-788-8100
Fax: 781-788-8101

Washington, D.C.

1615 M Street, NW, Suite 740
Washington, D.C. 20036-3209
Phone: 202-728-2080
Fax: 202-728-2095

International Offices

Dubai

PO Box 18145
Dubai, United Arab Emirates
Phone: +971-05-655-9521
Fax: +971-4-391-6747

Jakarta

Graha Niaga, 1st Floor
Jl. Jend. Sudirman, Kav. 58
Jakarta, Indonesia 12190
Phone: +62-21-250-5410
Fax: +62-21-250-5412

Manchester

Williams House
Manchester Science Park
Lloyd Street North
Manchester, M15 6SE, UK
Phone: +44-161-232-3400
Fax: +44-161-232-3409

Pretoria

1st Floor, Southern Life Plaza
1059 Schoeman Street, Hatfield
Pretoria, South Africa
Phone: +27-12-342-5318
Fax: +27-12-342-5358

San Salvador

Boulevard del Hipodromo Pasaje 10
Casa No. 110, Colonia San Benito
San Salvador
El Salvador
Phone: 503-243-2678
503-243-6177/6174
Fax: 503-243-3384

Subsidiaries and Affiliates

Warsaw

RTI Polska LLC
Bartoszewicza 1A/18 Street
00-337 Warsaw, Poland
Phone: +48-22-827-0444
Fax: +49-22-826-03-75