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Annual Report



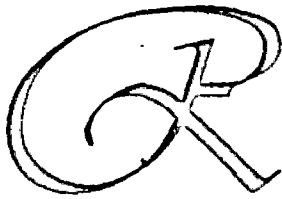
**Making a
Difference**



President's Statement

RTI Mission

RTI is dedicated to improving the human condition through multidisciplinary research, development, and technical services that meet the highest standards of professional performance.



RTI staff take great pride in innovation and teamwork, so it was especially gratifying when clients and scientific communities honored members of our staff with significant awards in 1996.

These awards (pages 2 and 3) provide examples of RTI at its best. They demonstrate how RTI works with companies, agencies, and other organizations to accomplish their missions and make a positive difference in the lives of the people they serve.

We work with our clients to bring medical discoveries out of the laboratory, to create lasting benefits in public health, to transfer leading-edge technologies to the marketplace, to build cost-effective government services, and to find economically sound ways to protect the environment.

This mission-focused approach to research and technical services is what sets RTI apart, and this annual report presents a small sample of what our staff and our clients accomplished together in 1996.

F. Thomas Wooten
RTI President
January 1997

For more information, please visit RTI on World Wide Web [<http://www.rti.org>], contact [listen@rti.org] by e-mail, send a FAX to 919-541-6515, or call 919-541-6000, extension 8792.

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Medical and Pharmaceutical R&D 4

RTI and its medical R&D clients share a common mission: to improve human health through innovative ideas. RTI achieves this mission by working at the interface of basic and applied research, as well as by implementing new approaches to manage disease and control costs.



Public Health Research 6

RTI's public health mission is to create, test, and share cost-effective initiatives that pay long-term dividends for families, companies, and governments. RTI and its clients accomplish this mission through a unique merging of data collection and experimentation.



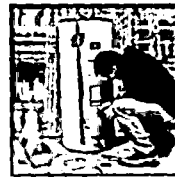
Advanced Technology R&D 8

Technology R&D at RTI brings innovative ideas out of the laboratory and into practical use. Together with clients and strategic partners, RTI makes a difference in breakthrough R&D worldwide. From semiconductor materials and devices to technology transfer, RTI's clients realize the present and future promises of advanced technology.



Environmental Protection 10

RTI's environmental mission is to contribute to the informed management of the environment. RTI both develops new knowledge and information and applies existing information to help government and industry protect public health and the environment.



Public Policy 12

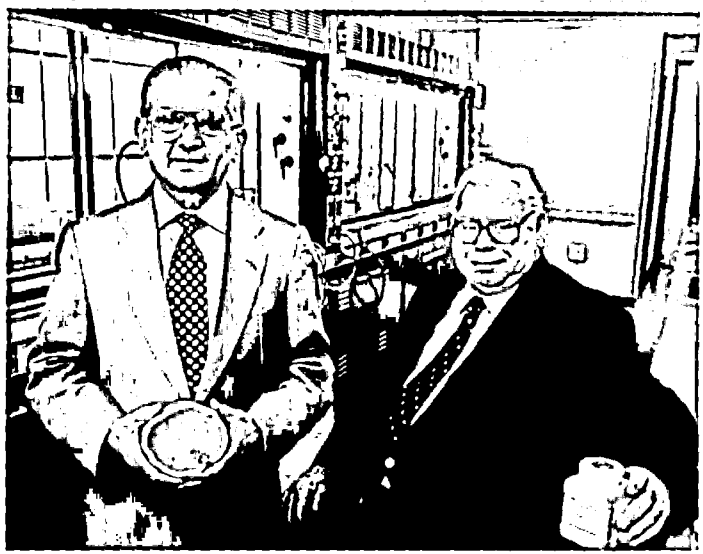
In the United States and around the world, governments and public utilities are basing policy decisions on award-winning research and technical services from RTI. From baseline economic surveys in the Kyrgyz Republic to vocational rehabilitation programs in the United States, RTI's experts build the capability and efficiency of programs that meet the public's needs.

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1996 Honors and Awards



Pioneering Record in Cancer Research

Mansukh C. Wani, PhD, and Monroe E. Wall, PhD, received the National Cancer Institute (NCI) Award of Recognition for their discovery and development of the cancer drugs Taxol and Camptothecin [http://www.rti.org/research/pharm_pioneers.html]. NCI officials presented the awards in June 1996 at *The Monroe Wall Symposium*, a natural products chemistry conference.

Taxol and Camptothecin were discovered from tree bark in RTI laboratories in the 1960s, but it was not until the 1980s that advanced biochemical methods revealed that they were unique tools for fighting cancer. Taxol is approved in the United States for ovarian and breast cancer. Second-generation Camptothecins are approved in the United States for refractory ovarian and colorectal cancer, in Japan for ovarian cancer, and in Europe for non-small-cell lung cancer.

Dr. Wall and Dr. Wani have received many honors for their leadership in natural products chemistry, including the Bruce F. Cain Memorial Award from the American Association for Cancer Research in 1994.

Taxol®, a word coined by Monroe E. Wall, is a trademark of Bristol-Myers Squibb Co.



Discovery in Hearing Prosthetics

A speech processing technique for cochlear implants developed at RTI won a 1996 Discover Award for Technological

Innovation. The continuous interleaved

sampling (CIS) processor was developed by Blake S. Wilson, director of auditory prosthesis research at RTI, and his colleagues [<http://www.rti.org/difference/cochlear.html>]. The awards recognize those who have made significant impacts through technology. Winners were profiled in the July 1996 issue of *Discover* magazine.

A cochlear implant consists of a microphone, a speech processor, and, implanted in the inner ear, an array of electrodes. The CIS processor has resulted in significant improvements in speech reception. Most manufacturers of cochlear implants now use the CIS processor. The team that developed it included RTI, Duke University Medical Center, the Massachusetts Eye and Ear Infirmary, and the Massachusetts Institute of Technology.



Len Irish ©1996 The Walt Disney Co.
Photograph provided courtesy of *Discover* magazine.

Recognized Team in Environmental Chemistry

RTI's team in environmental chemistry was recognized by professional associations when one team member, Emily Williams, accepted the Research Award at the LeadTech '96 conference.

The award recognizes R&D in measurements of environmental lead, including evaluating the performance of field technologies and laboratory methods for analysis of lead in paint, dust, and soil. There is strong interest in a field technology for electrochemical analysis because it provides rapid and low-cost data on-site that are comparable to laboratory results. The National Lead Laboratory Accreditation Program is being expanded to include such field technologies.

Distinguished Chemist in Environmental Measurements

R.K.M. Jayanty, PhD, manager of environmental methods and standards development [<http://www.rti.org/units/ese/cemqa.html>] at RTI, was named Distinguished Chemist of 1996 by the North Carolina Institute of Chemists.

In 1994, Dr. Jayanty became only the 40th person named a fellow of the Air and Waste Management Association [<http://www.awma.org>], which called his research on the stability of trace organic compounds in environmental media "unique and valuable to the scientific community throughout the world." In 1991, he received the association's highest technical recognition, the Frank A. Chambers award, for his contributions to the field of air pollution measurements.



MERIT in Drug Abuse Research

RTI's research on the biochemical mechanism of action of cocaine has been recognized by a Method to Extend Research in Time (MERIT) award from the National Institute on Drug Abuse (NIDA grant 2 R01 DA05477-09). Such MERIT awards recognize investigators whose research competence and productivity are distinctly superior and who are likely to continue outstanding performance. RTI's research on drugs of abuse is led by F. Ivy Carroll, PhD, who received a NIDA Pacesetter award for this research in 1993.



Golden Achievement in Environmental Management

Poland's Ministry of Environment and Natural Resources recognized RTI's international development program [<http://www.rti.org/units/ssid.html>] with a "Golden Achievement Award" for accomplishments in environmental development and pollution abatement. Gold, silver, and bronze awards are given annually to organizations and individuals who contribute to environmental protection in Poland. The Wrocław Regional Water Management Authority nominated RTI for the award, citing 20 technical assistance and training projects in water and wastewater management. Funded by the U.S. Agency for International Development, RTI has provided technical assistance on environmental management to communities in Poland since 1992, focusing on wastewater and solid waste management.

In 1995, two communities in Poland being assisted by RTI received the country's President's Award for their environmental initiatives.



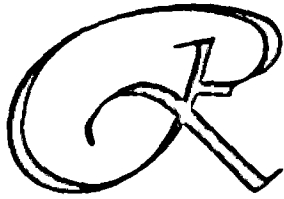
Leader in Electromagnetics Research

John Finger, an electrical engineer in RTI's Virginia office [<http://www.rti.org/units/es.html>], has received the NASA Public Service Medal for exceptional contributions to the agency's mission. Paul Holloway, director of the NASA Langley Research Center, nominated Mr. Finger, calling him "a recognized national leader in electromagnetics research and measurement techniques."

Mr. Finger provided technical leadership for developing an indoor compact antenna measurement laboratory (a "compact range") and pioneered methods for highly accurate

measurements in such labs. His work enabled compact ranges to take over experiments previously conducted on outdoor test ranges, saving both time and money in evaluating advanced aircraft concepts, some of them developed by Mr. Finger.

Medical and Pharmaceutical R&D



RTI and its medical R&D clients share a common mission: to improve human health through innovative ideas. RTI achieves this mission by working at the interface of basic and applied research, as well as by implementing new approaches to manage disease and control costs.

Medical R&D requires a broad range of sciences, and a multidisciplinary organization such as RTI is uniquely qualified to provide them. As a result, RTI is at the focal point of many initiatives that involve teams of researchers from industry, government, and academia.

Accomplishments by these teams are saving lives and changing lives around the world. From drug discovery, to product testing, to disease management, to pharmacoconomics, RTI is a proven leader in innovation.

Contact E. Michael Samuhel, PhD, [samuhel@rti.org]



RTI works with pharmaceutical companies and third-party payers to apply disease management concepts in health care. Combining informatics, pharmacoconomics, and pharmaco-epidemiology, RTI helps maximize the value of medical discoveries.

Discoveries

Pharmaceuticals Development

In 1996, RTI completed two product development agreements for pharmaceutical discoveries. These included treatments for reproductive diseases and third-generation camptothecin analogs for cancer treatment (page 2). To complement its strong commitment to early drug discovery, in 1996 RTI invested in development of an intellectually based combinatorial approach to create candidate compounds, rapid bioassays to screen these compounds, and rapid analytical methods to characterize them.

Anti-STD Spermicide

RTI, two universities, and a biotechnology company started work in 1996 on an idea for spermicide that also inhibits sexually transmitted diseases such as HIV. Over a three-year period, RTI will develop new compounds, and university and industry partners will test for effectiveness and safety.

Cochlear Implants

During 1996, most manufacturers of cochlear implants adopted a speech processing approach developed by an RTI-led team of researchers (page 2). Cochlear implants provide partial hearing for some profoundly deaf people, and RTI's speech processor has dramatically improved the opportunity to interpret speech.

Outcomes Research

Pharmacoeconomics

Health professionals face a demanding requirement to consider the value of alternative therapies to patients, clinicians, and payers. RTI rose to this challenge in 1996 with economic research, conjoint analysis, contingent valuation, and software development, working with seven of the world's leading pharmaceutical companies.

Disease Management

RTI is providing integrated developmental, logistical, data management, and analytic support for a large pharmaceutical company's disease management programs, aimed at improving the cost-effectiveness of its products. In 1996, RTI put the latest in innovative data collection and information sharing technologies to work. Data are collected via questionnaires, as well as Computer-Assisted Telephone Interviewing and Interactive Voice Response. Information is reported and shared through a secure Internet site.

Pharmacoepidemiology

In 1996, a patient outcome research team completed five years of research on stroke prevention. The study, led by Duke University and including RTI surveys of patients and physicians, has provided important insights on how physicians make decisions and the outcomes patients experience. One result revealed opportunities to use disease management to facilitate use of anticoagulants, which had been shown to improve outcomes for certain kinds of patients who are at risk for stroke. Also in 1996, RTI began a concentrated effort to provide epidemiological research to multinational pharmaceutical firms. One of the first efforts was a study evaluating the progression of a chronic gastrointestinal disorder over time.

Product Evaluation

Methods Development

RTI has expanded its program in pharmaceutical and chemical analysis, which provides the challenging methods development capabilities and analytical chemistry necessary to ensure the quality of preclinical and clinical results. RTI also develops methods to help companies maintain priorities and meet FDA submission requirements in a fully compliant (GLP/GMP) environment. Work in 1996 focused on products to treat infectious diseases and cancer [<http://www.rti.org/units/acs.html>].

Toxicology

In 1996, RTI expanded its capabilities for preclinical safety and efficacy studies in reproductive and developmental toxicity, as well as endocrinology, neurotoxicity, and behavioral evaluations. RTI's work in 1996 helped both small and large companies accelerate development of their products.

Analyzing Correlated Data

In 1996, RTI introduced Version 7 of its SUDAAN software for analysis of correlated data. The new version includes a generalized estimating equations approach that is of special interest for toxicology and clinical research. In both types of research, cluster-correlated data are common, and SUDAAN properly accounts for correlation in analyses such as multinomial logistic regression [<http://www.rti.org/patents/sudaan.html>]. ■

Public Health Research

RTI's public health mission is to create, test, and share cost-effective initiatives that pay long-term dividends for families, companies, and governments. RTI and its clients accomplish this mission through a unique merging of data collection and experimentation.

RTI is among the world's leaders in statistics and survey research and has leading researchers in issues such as drug abuse, violence, disease, occupational health, and environmental health. In addition, RTI enjoys a rich collaboration with public health practitioners in communities worldwide.

Leading the way with innovative survey research methods to collect sensitive information, RTI provides personal, behavioral, and financial data on health. These data support sound policy decisions by national governments, state governments, and the private sector.

RTI makes a difference in public health by putting knowledge to work in state-of-the-art demonstrations and evaluations of prevention and treatment initiatives. These experiments put new ideas to the real-world test and provide thought-provoking analysis that supports cost-effective use of limited resources.

Contact E. Michael Samuhel, PhD, [samuhel@rti.org]
[<http://www.rti.org/units/shsp.html>]



Through innovative survey methods, RTI is a leader in collecting sensitive and hard-to-gather data on public health issues. RTI has conducted the first large-scale surveys using Audio Computer-Assisted Self-Interviewing, a method that improves the quality of responses in many settings, including research on the effectiveness of the supplemental nutrition program for Women, Infants and Children (WIC), shown here.



Health Care Services

Consumer Health Information

RTI has developed print and video approaches to provide Medicare and Medicaid consumers with information that helps them make cost-effective use of health care plans. This material emerges from ongoing research on objectively measuring the performance of health care plans and providing consumers with useful information [<http://www.ahcpr.gov/research/cahps/dept1.htm>], [<http://www.ahcpr.gov/research/consum.htm>].

Medicare Managed Care

RTI reported evaluation results in 1996 on a Medicare supplemental insurance ("medigap") program called Medicare SELECT, which provides benefits through hospital or physician networks under contract to the insurer. RTI found that while SELECT plans tended to offer relatively low premiums, Medicare costs increased in about as many demonstration states as they decreased as a result of SELECT. Thus, as it is currently being

implemented, SELECT is putting more lower-cost medigap products on the market, but it is unlikely that it will significantly lower Medicare program costs.

Quality of Long-Term Care

A study by RTI and Brown University has demonstrated that regulating quality of care in board-and-care homes provides benefits to elderly residents such as reduced use of contraindicated drugs, improved safety, and increased availability of key services [http://www.rti.org/difference/longterm_care.html].

Prevention Initiatives

State Initiatives on Drug Abuse

Through collaboration with RTI in 1996, six U.S. states are developing needs assessments that help them optimize their prevention and treatment strategies for drug and alcohol abuse. RTI's approach establishes within each state a capability to maintain current data on needs and results [http://www.rti.org/hypo_etc/winter9596/contents.html].

Quality of Public Housing

Safety and quality of life for public housing residents will benefit from RTI research in 1996 that identified youth violence prevention programs that are good candidates for implementation in those communities.

Violence Prevention

Community leaders in Durham, NC, teamed with RTI public health researchers to establish a violence prevention program. Preliminary results in 1996 show improvements in violence-related measures such as risk behaviors. (CDC grants R49/CCR411632-01 and U81/CCU408504-04.)

Outreach on HIV

In 1996, RTI reported preliminary data from an initiative in North Carolina to reduce women's risk of HIV infection. The initiative's strongest effects are for women with the riskiest behaviors, but research shows that a wide variety of intervention strategies are needed for such programs to reach their potential. (NIDA grant 1 U01-DA-08077-01-A1.)

Survey Research

Military Health Survey

In 1996, RTI completed the fifth Worldwide Survey on Substance Abuse and Health Behaviors among Military Personnel. The U.S. Department of Defense uses this highly regarded study to monitor substance abuse rates and health behavior problems among the active force [<http://www.ha.osd.mil>], click "clinical issues".

Mental Health Survey

The National Survey of Child and Adolescent Health, started in 1996, will explore the accessibility, quality, and costs of mental health services for children and adolescents in the United States. RTI is responsible for survey research on the project, which involves the National Institute of Mental Health and researchers at eight universities.

Drug Abuse Survey

RTI completed the first large-scale use of Audio Computer-Assisted Self Interviewing (ACASI) in 1995, demonstrating its power to improve collection of sensitive information on risk behaviors. In 1996, RTI began development of ACASI for the 1997 National Household Survey on Drug Abuse [<http://www.samhsa.gov>].

Advanced Technology R&D

Technology R&D at RTI brings innovative ideas out of the laboratory and into practical use.

Together with clients and strategic partners, RTI makes a difference in breakthrough R&D worldwide. From semiconductor materials and devices to technology transfer, RTI's clients realize the present and future promises of advanced technology.

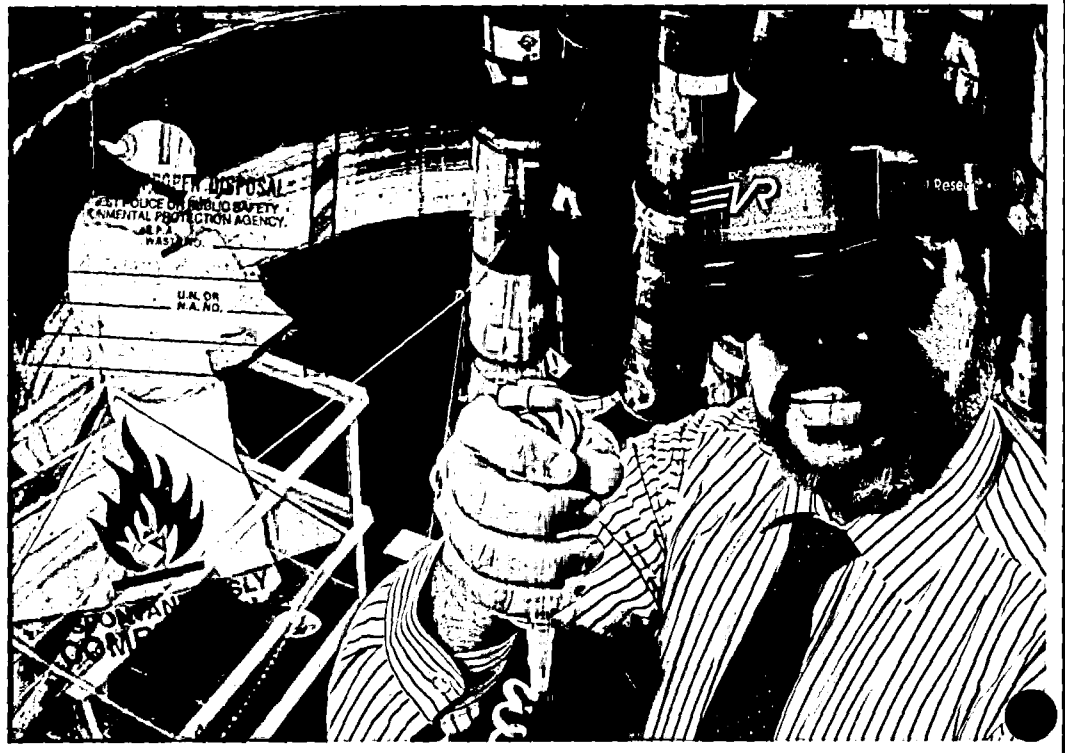
This multidisciplinary R&D combines RTI's resources with those of partners in both industry and government. This approach rapidly reduces theory to practice and creates innovative solutions.

RTI puts these solutions to work in many fields. These include new energy technologies, semiconductor materials and devices, virtual reality applications, aerospace technologies, and technology management.

In all these areas, RTI helps its customers accomplish their goals through the identification, development, application, and transfer of leading-edge, Information Age technologies.

Contact James B. Clary,
[jbc@rti.org]
[<http://www.rti.org/units/es.html>]

RTI brings the leading edge of virtual reality (VR) technology to the marketplace through practical applications in advanced learning environments, marketing, and market research. RTI combines VR with complementary tools such as natural language processing, multimedia presentation, and conjoint analysis of product preferences. These applications provide unique opportunities to develop skills and to assess responses by allowing people to experience situations that are difficult to access for reasons such as hazard or expense. (<http://www.rti.org/units/es/ease/easebis.html>).



Energy Technologies

Alternative Energy

Bringing technology from a Russian research institute in 1996, RTI helped form a company in Durham, NC, to apply a high-output technology for hydrogen fuel cells. RTI and MAGNIC, Inc., are developing technology to provide portable power for short-term needs in remote locations.

During 1997, a biomass-fueled electric generating plant will come on line at Camp Lejeune Marine Corps Base in North Carolina. In this EPA-funded project, RTI will demonstrate technology that has broad potential for military bases and for developing countries.

Thermoelectrics

Engineers at RTI have created a new approach to solid-state cooling that has the potential to transform refrigeration. Working in a new laboratory facility, RTI engineers made significant progress in 1996 to assess and demonstrate its potential.

Cascade Solar Cells

RTI developed a cascade solar cell technology that powers communications and military satellites. TECSTAR, Inc., brought RTI's second generation of cascade cells to the market in 1996. The R&D team is working on the next generation of these high-efficiency devices [<http://www.rti.org/units/es/csr/timmons.html>].

Materials and Devices

Synthetic Diamond

RTI has demonstrated large-area diamond deposition at high rates needed to produce diamond films at under \$1 per carat. This technology is being developed for commercial use by a team, including RTI, 3M, Honeywell, ASTex, and the Naval Research Laboratory. Lower cost drives applications such as thermal heat spreaders, diamond tools, infrared windows, surface acoustic wave devices, and low field electron emitters.

Flat-Panel Displays

In 1996, RTI demonstrated high electron yields on diamond and III-V nitride negative electron affinity surfaces to make low-power emitters for flat-panel displays. Also in 1996, RTI demonstrated a low-temperature, high-speed, polycrystalline thin-film silicon transistor technology for active-matrix liquid crystal displays.

Virtual Reality

Advanced Learning Environments

RTI has demonstrated the power of VR-based training to develop cognitive skills and has put that power to work in practical training applications. The first of RTI's *21st Century Classrooms* opened at Ft. Leavenworth, KS, in 1996, and RTI began constructing another classroom in the Research Triangle Park. In addition, RTI's Advanced Maintenance Assistant and Trainer (AMAT) went into practical use, giving military tank mechanics a portable expert system with a natural language interface.

Marketing

Volvo GM Heavy Truck is making some of its 1997 product development decisions based on RTI's innovative TradeOff VR, which combines virtual prototyping with the conjoint analysis method of identifying customer-preference tradeoffs. Meanwhile, leading manufacturers are using VR models from RTI to generate excitement for their products at trade shows.

Technology Management

NASA Technology

In 1996, RTI completed 16 new deals between NASA laboratories and companies that are bringing government technology to the marketplace. For example, a NASA predictive sensor algorithm that cuts response time by 67 percent was approved by FDA for electronic thermometers.

RTI creates commercialization success by combining up-front identification of marketplace needs with market and technology assessment [<http://www.rti.org/technology>].

Also in 1996, RTI published *Making Money with Your Technology*, a reference book for technology-based small businesses. Initiated to assist companies involved in SBIR/STTR projects with NASA, the book is available to anyone who is in the business of making money with technology.

Data Communications Technology

In 1996, RTI spun off DCT, Inc., to develop applications of signal processing technology that had emerged from military-funded research at RTI. DCT has introduced its first product, a communications board for personal computers. The company also is developing wireless modems and PC-based video communications products [<http://www.rti.org/dct/dct.html>].

Aerospace Technology

Launch Safety

RTI has stepped up to worldwide leadership in analyzing and improving the safety of commercial space launches by working in 1996 with launch sites on three continents. RTI provides similar support to government launch sites at the Cape Canaveral Air Station and the Vandenberg Air Force Base.

General Aviation Renaissance

RTI provides systems engineering and market analysis to integrate the technical efforts of an industry-government partnership that aims to revitalize the general aviation industry in the United States. Initiatives in 1996 included innovative propulsion and control systems and demonstration of control and communications technologies [<http://agate.larc.nasa.gov>]. ■

Environmental Protection

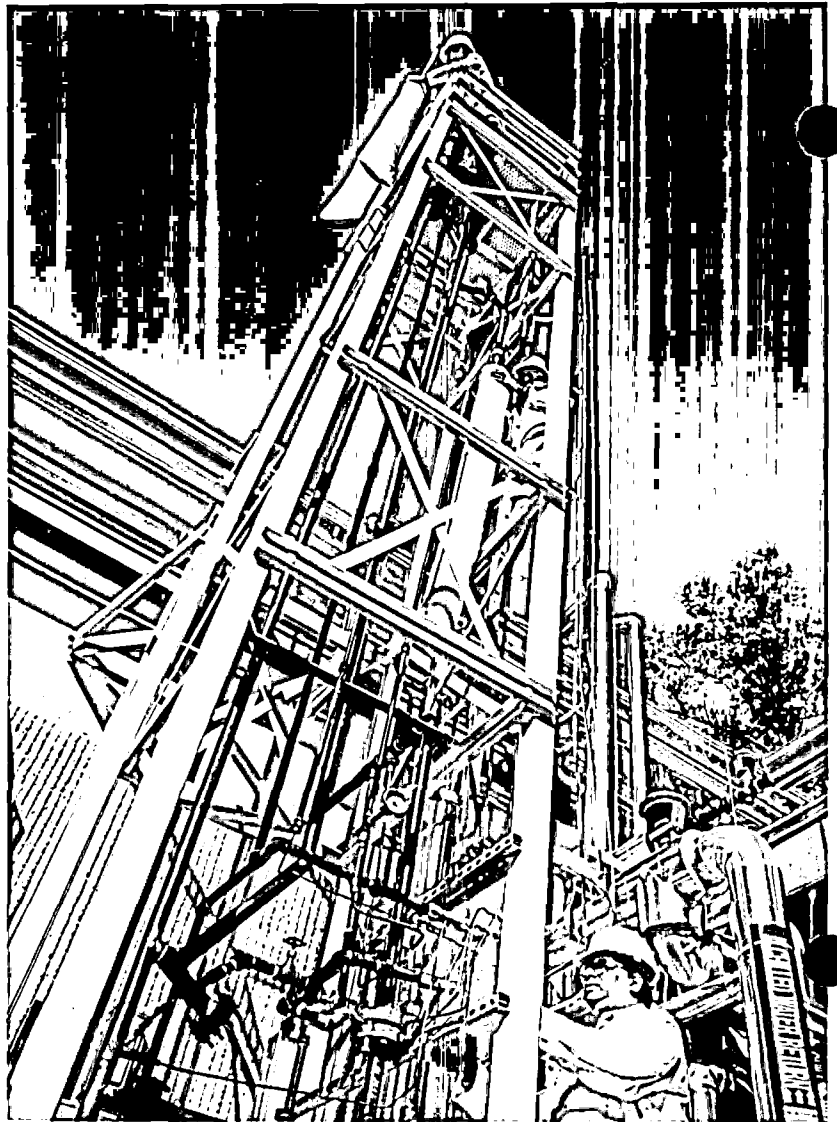
RTI's environmental mission is to contribute to informed management of the environ-

ment. RTI develops new knowledge and information and applies existing information to help government and industry protect public health and the environment.

Managing a public resource such as the environment is a complex undertaking because of the numerous linkages between human activities and technical and environmental systems. Choices made by individuals and institutions shape the impact of man on the environment. Both formal policies established by governments and the actions of industry and individuals may modify this impact.

Clients benefit from the Institute's ability to provide broad multidisciplinary research as well as in-depth examinations of technical, scientific, and policy environmental issues.

Contact Dennis F. Naugle, PhD, [dfn@rti.org]



RTI develops innovative hot-gas cleanup technologies for advanced, high-efficiency coal-gasification-based power plants. In 1996, RTI and a catalyst manufacturer developed improved spray-dried zinc titanate sorbents. RTI (and government/industry teams) continued development of RTI's patented Direct Sulfur Recovery Process. New initiatives to develop processes to remove other gaseous contaminants such as ammonia, hydrogen chloride, and alkali vapors also are under way. In 1996, RTI installed the pilot-scale unit shown here for gas cleanup R&D.

Environmental Measurements

As a recognized leader in measurements (pages 2 & 3), RTI contributed new methods in 1996. RTI evaluated an accurate low-cost electrochemical field method for lead and automated screening methods for volatile organic compounds in coatings. In 1996-97, RTI is developing methods to measure specific hazardous air pollutants in wastes and commercial products.

Also in 1996, RTI developed new methods to measure chemicals in many types of biota, which will aid in assessing risks to wildlife from toxic chemicals.

Environmental Assessment

Human Health

Combining chemistry, biology, and statistics, RTI conducts the National Human Exposure Assessment Study, providing valuable data for risk assessment and establishing the present status and future trends in exposure to chemicals in air, water, food, dust, and soil. In 1996, RTI applied the same approaches in the largest population-based study of human exposure ever done, helping industry determine exposure to manganese from vehicle exhausts. Such research guides toxicology studies and helps risk managers set public policy.

Also in 1996, researchers at RTI, Duke University, and the University of North Carolina at Chapel Hill started a project to examine the value individuals place on reduced risk of infertility from exposure to pollutants. For use in environmental policy making, researchers will provide a theoretical framework and gather data from couples.

Toxicology

In a new NIEHS grant, RTI is exploring the heritability of mutations induced in the reproductive cells of transgenic mice. This will yield crucial information for

tests of how chemicals or other agents can do harm that might be transmitted to and cause genetic disease in future generations. (NIEHS grant 1 R01 ES06339-01A3.)

RTI has a broad program in toxicology testing and methods development. For example, RTI develops and applies methods to assess endocrine disruption, which can cause reproductive and developmental abnormalities in animals and humans. In 1996, RTI validated three new receptor binding assays using human cell lines to screen potential endocrine disrupters. RTI also is evaluating endocrine challenge tests (similar to human and veterinary diagnostic tests) for use in toxicology.

Environmental Systems

RTI develops information systems, models, resource plans, and monitoring and assessment programs for all environmental media. RTI has worked with 40 states, all 10 EPA Regions, EPA program offices, industrial clients, and European countries. New developments in 1996 include state-of-the-art guidance for risk-based solutions to soil contamination problems [<http://www.epa.gov/superfund/oerr/soil/index.html>] and a comprehensive update of an electronic system that is used to prioritize Superfund sites and to assess human and ecological risks from waste sites [<http://www.epa.gov/superfund/oerr/products/prescore.html>].

Environmental Technologies

Pollution Prevention

RTI helps government and industry assess and implement pollution prevention by evaluating efficiency, life-cycle costs, durability, maintenance, and cross-media pollutant transfer. Many companies can meet clean air requirements and business goals through process decisions on materials such as solvents and coatings. In 1996, RTI added the Coatings Alternatives Guide

[<http://clean.rti.org/cage>] to its WWW-based expert system, the Solvents Alternatives Guide [<http://clean.rti.org>].

Eliminating Hazardous Solvents in Manufacturing

RTI solves surface cleaning and clean-room contamination problems through ultraclean testing, microbiological investigations, and cleaning process development. In 1996, RTI increased competitiveness and reduced environmental risks by developing solutions that meet environmental and business goals [<http://clean.rti.org/green>].

Environmental Management Policies

Policy Design

In 1996, RTI completed an experimental evaluation of fee-for-service pricing for residential solid waste management based on data from a program in Marietta, GA. This evaluation will help other localities make decisions on waste management policy. Also in 1996, RTI began a new study on the potential of emissions-trading to achieve environmental goals at lower costs than traditional regulatory policies.

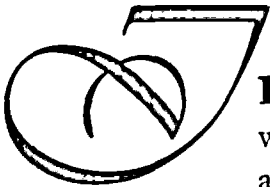
Economic Impacts

For EPA, RTI assesses the economic impacts of policy alternatives. In 1996, RTI completed integrated economic analysis of regulations on the portland cement and hazardous waste management industries. Regulations affect both industries because many cement plants use hazardous waste as fuel, so integrated analysis is especially important.

Risk Management

In 1996, RTI became the lead contractor for EPA's Office of Solid Waste and Office of Water for comprehensive research and technical services in risk-based decision making. These initiatives recognize the breadth and depth of RTI's environmental capabilities. ■

Public Policy



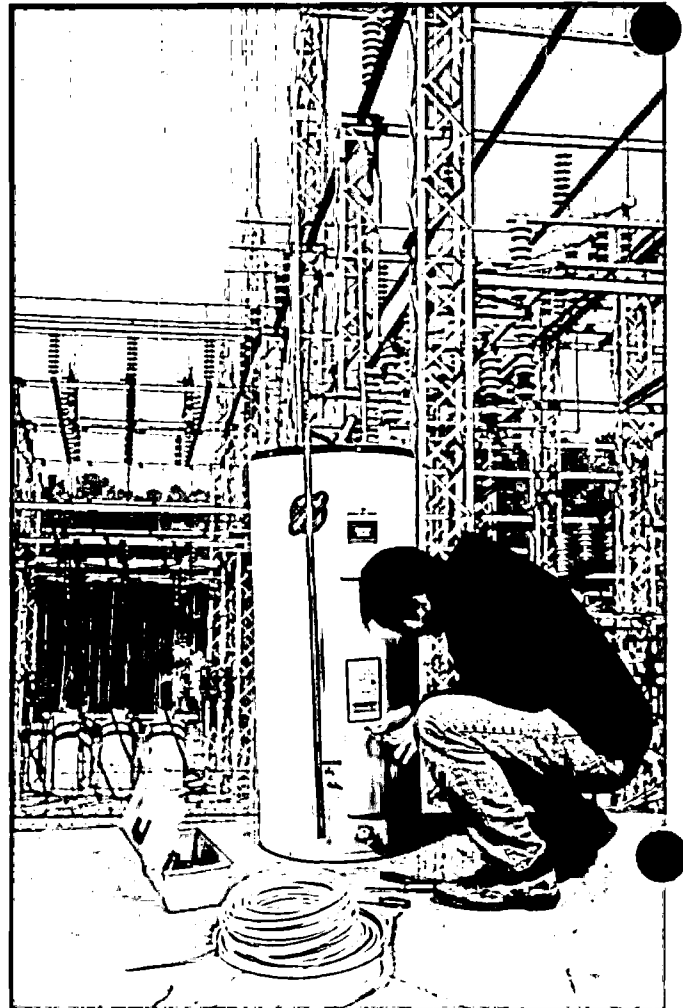
In the United States and around the world, governments and public utilities are basing policy decisions on award-winning research and technical services from RTI. From baseline economic surveys in the Kyrgyz Republic to vocational rehabilitation programs in the United States, RTI's experts build the capability and efficiency of programs that meet the public's needs.

RTI teams with service providers and local counterparts to establish projects that meet immediate needs, develop decision tools, and evaluate the effectiveness of initiatives. This approach yields rapid results and creates in-place capacity to meet future needs.

Such teams are addressing population and health, government performance, regional development, education, and public utilities issues.

In all cases, RTI helps nations and communities achieve their goals through application of the leading approaches to cost-effective and responsive provision of services.

Contact Ronald W. Johnson, PhD, [rwj@rti.org]
[<http://www.rti.org/units/ssid.html>]



As a new competitive landscape takes shape in the United States, electric utilities are offering new products and services such as comfort guarantees, service contracts, real-time energy use information, and new pricing options for unbundled services. In 1996, RTI worked with companies to develop tools to gauge customer interest in such innovations and assess profit potential of programs such as flat-fee provision of domestic water heating service. RTI offers these tools through multi-client programs.

Population and Health

Family Planning and Reproductive Health

Bangladesh began implementing a 10-year national strategic plan for family planning and reproductive health in 1996. RTI worked with government and social service organizations to develop the plan. Now RTI is helping to evaluate the effectiveness of services and to identify changes needed to ensure success, which will be measured by both slower population growth and improved maternal and child health.

Preventing HIV/AIDS in Africa

RTI is training officials from nine counties in sub-Saharan Africa to analyze the HIV/AIDS epidemic and identify the most urgent policy actions they should take. RTI's work in Kenya was instrumental in developing consensus for a substantially increased government investment in HIV/AIDS prevention and control in 1996.

Local Environmental Management

RTI's Environmental Management project in Central Europe spun off an independent company in Poland during 1996, establishing in-place capability to help communities with wastewater and solid waste issues. RTI has helped communities in Central Europe since 1992, receiving recognition from the Polish government (page 3) and the highest possible performance ratings from the U.S. Agency for International Development (USAID), which sponsors the work.

Government Performance

Municipal Financial Management

Among the first cities in former Soviet states to adopt modern financial methods and provide openness in their budget planning are those being assisted by RTI. For three years, the project has focused on eight cities in Russia, Ukraine, Kazakstan, and Kyrgyzstan. In 1996 RTI began sharing the lessons learned with more cities in these and other republics.

RTI's record of success in building developing countries' capabilities in financial management expanded in 1996 when the Asian Development Bank and the Republic of Indonesia selected RTI to assist communities in that country.

Municipal Performance

RTI helps USAID improve the quality of local governance through training and institution building. In 1996 RTI helped rapidly developing cities create the building blocks of democracy and good governance with improved management and citizen participation, receiving the highest possible performance ratings from USAID for its core project in this field.

Also in 1996, RTI demographic and health information systems became part of a bold reform initiative in Bolivia to transfer decision-making on health and education services to local governments and the people they serve.

Measuring Living Standards

As new nations in Central Asia invest in economic opportunities, they need data on the effectiveness of their policies. In 1996, RTI helped Kyrgyzstan and Uzbekistan develop surveys of living standards. As follow-up surveys are conducted, their governments will develop their capabilities and assume responsibility for ongoing research.

Sustainable Cities

RTI and the University of North Carolina at Chapel Hill began an initiative in 1996 to apply sustainable cities concepts to the rapid growth of the state's Research Triangle region. Sustainable cities succeed in the global economy while maintaining their cultural and environmental vitality. RTI has helped cities around the world and now has an opportunity to put the lessons learned to work in its home community.

Education

Vocational Rehabilitation

In a longitudinal study of vocational rehabilitation, RTI reported on consumers' perspectives on services that helped people with disabilities gain employment. The findings show high levels of satisfaction with the services, but that ongoing research will generate valuable ideas for improvement.

Also in 1996, RTI started new work to develop and test methods to assess the performance of state-federal vocational rehabilitation programs.

Educational Surveys

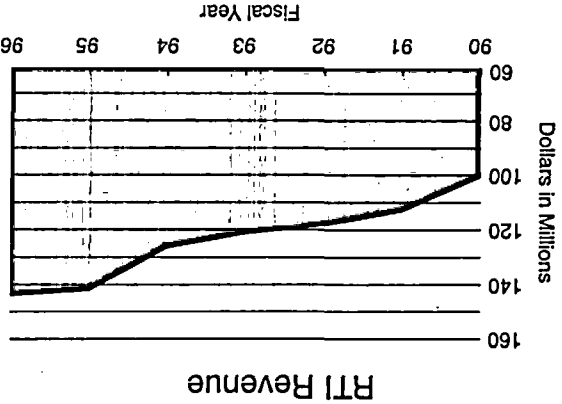
RTI has a long tradition of leadership in survey research that provides data for education policy decisions. In 1996, RTI provided important insights on financial aid as well as the progress and persistence of students and factors that improve their success. Data from the National Postsecondary Student Aid Survey and the Beginning Postsecondary Students Longitudinal Study are available at [<http://www.ed.gov/NCES>]. ■

Operating Highlights

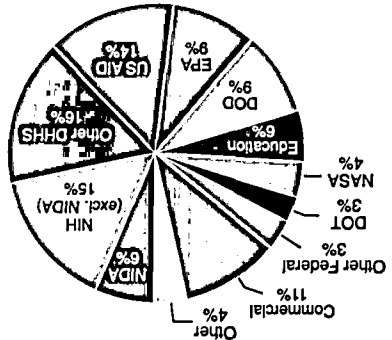
In 1996, the Insures' clients benefited from a fourth consecutive annual reduction in costs charged to clients. RTI will continue to offer greater value in 1997 and, at the same time, will invest in its capabilities for innovation. These investments are supported by strong financial results in 1996, which produced near-record net income. As a nonprofit research organization, RTI reinvests net income in its research capabilities. Revenue grew in 1996 to \$143.4 million. Significant growth was achieved in revenue from commercial and other nonfederal clients. This portion of RTI's revenue exceeded \$20 million for the first time in the Insures' history. This activity is especially important to all RTI's clients, including those in the U.S. government, because it creates worldwide opportunities to achieve clients' missions to put research results to work in ways that make positive differences in people's lives.

Summary Income Statement (dollars in thousands)

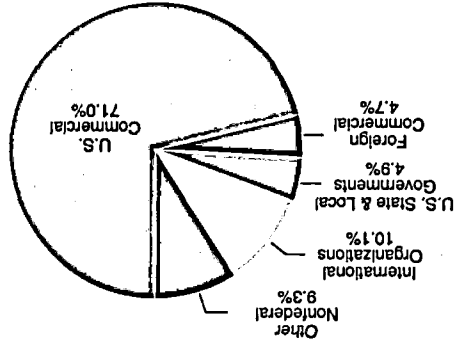
	1996	1995
Revenue from research projects	\$143,399.3	\$141,839.4
Other income	674.2	490.0
less: Project labor	45,027.1	42,107.7
Other project costs	45,597.6	48,967.4
Indirect costs	48,551.4	46,914.3
Net income	\$4,897.4	\$4,340.0



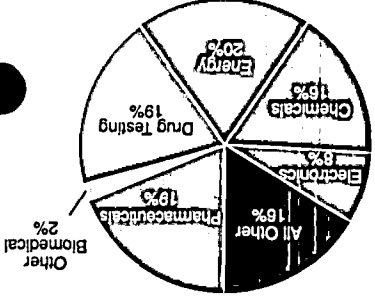
Sources of Revenue, 1996



Commercial and Other Nonfederal Revenue, 1996



Commercial Revenue, 1996



Governance and Corporate Officers

Board of Governors

Of the 30 Governors, five hold seats by virtue of their positions: the presidents of The University of North Carolina, Duke University, and the Research Triangle Institute and the chancellors of N.C. 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, N.C. State University, and UNC-Chapel Hill; up to 15 Governors are selected from the business and scientific communities.

Chairman:

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

Executive Committee Chairman:

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

Nancy Birdsall, Executive Vice President, InterAmerican Development Bank, Washington, DC

Erich Bloch, Distinguished Fellow, Council on Competitiveness, Washington, DC

Roy Carroll,* Senior Vice President and Vice President for Academic Affairs, The University of North Carolina

Julius L. Chambers, Chancellor, North Carolina Central University

Ivie L. Clayton,* Business Consultant, Raleigh

Earl H. Dowell, J.A. Jones Professor and Dean, School of Engineering, Duke University

William C. Friday, President, William R. Kenan Jr. Fund, Chapel Hill

Steve C. Griffith, Jr., Vice Chairman, Duke Power Company, Charlotte

Margaret T. Harper,* Southport

Franklin D. Hart, President, MCNC, Research Triangle Park

H. Garland Hershey,* Vice Provost for Health Affairs, University of North Carolina at Chapel Hill

Michael Hooker, Chancellor, University of North Carolina at Chapel Hill

William G. Howard, Jr., Consultant, Scottsdale, Arizona

M. Ross Johnson, President and CEO, TRIMERIS, Durham

Nannerl O. Keohane, President, Duke University

William F. Little,* Retired Senior Vice President, The University of North Carolina

Roger O. McClellan, President, Chemical Industry Institute of Toxicology, Research Triangle Park

Thomas J. Meyer,* Vice Provost for Graduate Studies and Research, University of North Carolina at Chapel Hill

Larry K. Monteith, Chancellor, North Carolina State University

Charles G. Moreland,* Vice Chancellor for Research, Outreach, Extension and Economic Development, North Carolina State University

Charles E. Putman,* Senior Vice President for Research Administration and Policy, Duke University

C.D. Spangler, Jr., President, The University of North Carolina

Phillip J. Stiles,* Provost and Vice Chancellor, North Carolina State University

John W. Strohbehn,* Provost, Duke University

Tallman Trask, III, Executive Vice President, Duke University

Gail R. Wilensky, Senior Fellow, Project Hope, Bethesda, Maryland

F. Thomas Wooten,* President, Research Triangle Institute

Phail Wynn, Jr., President, Durham Technical Community College, Durham

Members of the Corporation

The Members are the equivalent of RTI shareholders. As such, they elect the Governors who represent the business and scientific communities.

The Members of the Corporation include: the chairmen and presidents of The University of North Carolina and Duke University, and representatives elected annually from and by the Duke University Board of Trustees and the Board of Governors of The University of North Carolina.

Members of the Corporation representing Duke University are: John A. Forlines, Jr., Granite Falls; Nannerl O. Keohane, Durham; Thad B. Wester, Bald Head Island.

Members of the Corporation representing The University of North Carolina are: C. Clifford Cameron, Charlotte; Samuel H. Poole, Raleigh; Hon. Robert W. Scott, Haw River; C.D. Spangler, Jr., Chapel Hill.

Corporate Officers

RTI officers, including the research vice presidents listed on page 16, are elected by the Board of Governors.

F. Thomas Wooten, President

Alvin M. Cruze, Executive Vice President

William H. Perkins, Jr., Vice President, Finance

Walton J. O'Neal, Controller

Woody H. Yates, Assistant Treasurer

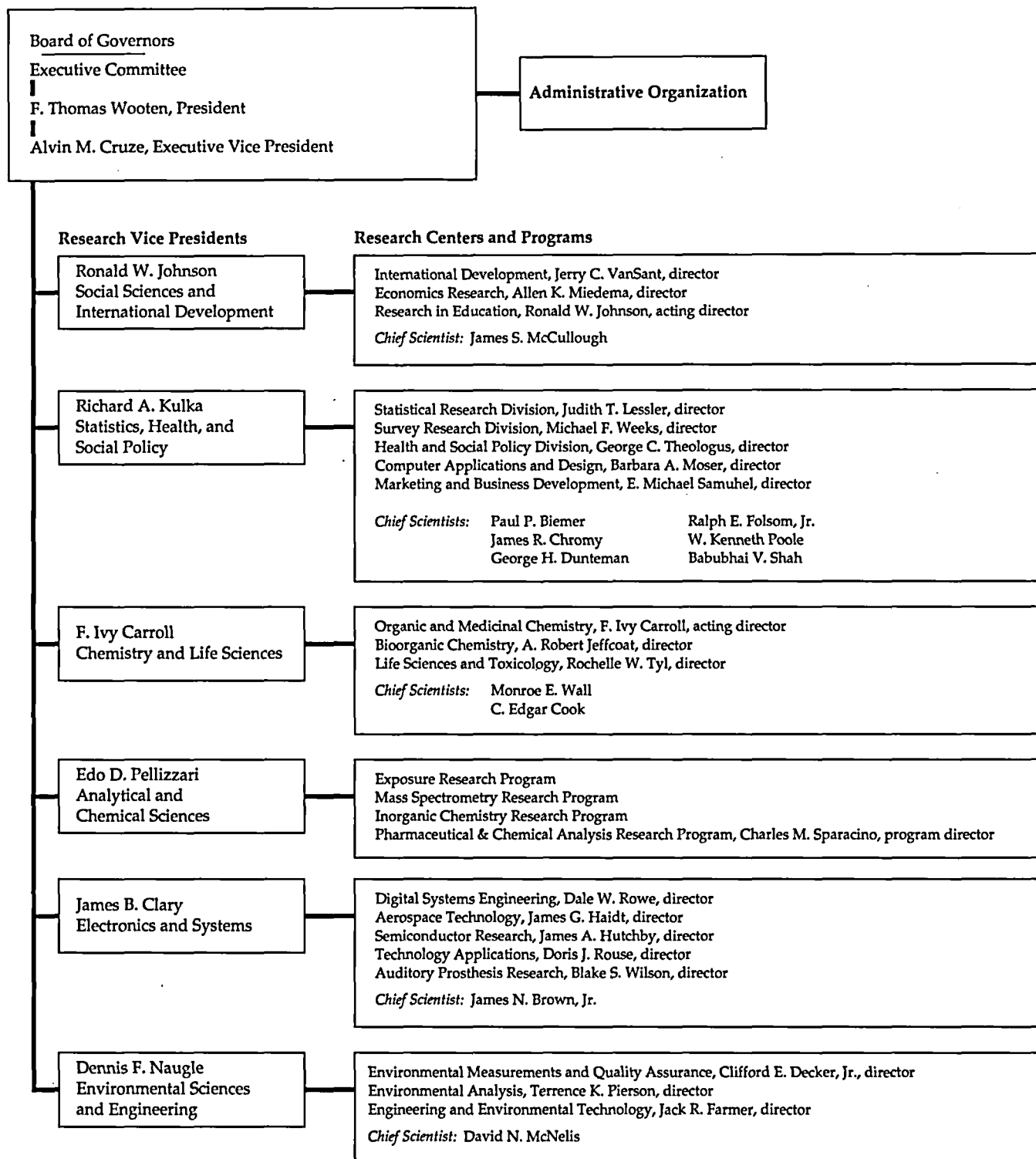
Suzanne P. Nash, Corporate Secretary

Carolyn J. Harris, Assistant Corporate Secretary ■

*Member, Executive Committee

Research Triangle Institute

Research Organization



Research Triangle Institute

Research Triangle Institute is an independent research institute that serves clients in the U.S. and abroad. With a staff of 1,450, RTI conducts research in advanced technologies, public policy, environmental protection, and public health and medicine.

RTI was founded in 1958 as the initial R&D center in the Research Triangle Park. Three universities worked together to establish RTI, and close ties are maintained with these universities through collaborative research, adjunct appointments, and other professional interactions.

Social Sciences and International Development

Applies economic, sociological, psychometric, and policy analysis methods to develop policies for governments and companies. Studies education, social welfare, environmental protection, public utilities, and economic development.

Statistics, Health, and Social Policy

Conducts collaborative research on public health, medical, environmental, social, and other areas of public policy and research. Designs and carries out scientific sample surveys, epidemiologic studies, community-based research, and clinical research. Provides evaluations of products and programs for public and private-sector sponsors. Evaluates the effectiveness of national, regional, and local initiatives. Provides specialized data capture, management, and analysis for statistical, social, and policy research.

Chemistry and Life Sciences

Designs, synthesizes, and assesses pharmaceuticals and agricultural, industrial, and environmental chemicals. Performs research in synthetic and bioorganic chemistry, metabolism, immunology, toxicology, and polymers.

Analytical and Chemical Sciences

Develops fundamental analytical methods and applies them in research on pharmaceuticals, pollutants, toxicology, and industrial processes.

Electronics and Systems

Develops electronic technologies for aerospace, manufacturing, and medicine. Technical areas include materials and devices, reliable high-performance systems, graphics, communications, automation, software engineering, and computational intelligence.

Environmental Sciences and Engineering

Develops basic information, regulatory strategies, and new technologies for environmental protection. Provides environmental measurements, quality assurance, risk assessment, technology assessment, chemical engineering, indoor and outdoor air quality analysis, pollution prevention, and contamination control.

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919-541-6515, or call 919-541-6000, extension 8792.

