RTI International - India
A Group Company of RTI International, USA

RTI strives to address social and developmental issues through innovative and high-quality research. We aim to provide actionable solutions that improve the human condition and the environment in a sustainable manner. We maintain high ethical standards while conducting research, and providing related consultancy services, bringing measurable value to our clients and stretching the boundaries of science and technology for global good. RTI International-India is a wholly owned subsidiary of RTI International, USA.

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RTI International
Established in 1958, RTI is an independent, non-profit research institute dedicated to improving the human condition. Clients rely on us to develop solutions that demand an objective and multidisciplinary approach, one that integrates expertise across the social and laboratory sciences, engineering, and international development.

Our Work in India
Our work addresses some of the critical challenges facing the country such as water, sanitation, waste management, public health, sustainable energy, and climate change. Gender equality, behaviour change, communication sciences and innovation are other crosscutting themes that support all of our work.

KEY PROJECTS IN INDIA

REACH is supporting the measurement, learning, and evaluation (MLE) efforts to improve the health of children under the age of 5 in India, with a focus on pneumonia and diarrhea in Uttar Pradesh and Bihar. As the MLE partner, we are working closely with the implementing partners – the University of Manitoba and CARE – to find ways to strengthen the quality of care provided by frontline workers and health facilities.

**Sanitation Technology Platform (STeP), Bill & Melinda Gates Foundation (2015 - ongoing)**
In support of Water, Sanitation, and Hygiene program, STeP helps transformative technologies reach people worldwide who don’t have access to safe and affordable sanitation. Our project site in Coimbatore, Tamil Nadu, provides a full range of services – including field testing, market intelligence, and user insights – to help inventors and industry develop products and services that address market needs. STeP is a collaboration of global experts and organizations that removes risk and streamlines the path to market, fostering greater success for its partners.

We have implemented projects across the country, including in Bihar, Gujarat, Karnataka, Maharashtra, Orissa, Uttar Pradesh, and Tamil Nadu. Over the past decade, we have demonstrated a long-standing commitment to working in India and capitalizing on our local and institutional expertise.

Our strength lies in our depth of expertise and proven research methodologies across many areas of science and technology, data science, communication science, and other knowledge – enabling tools. We take pride in our independent assessment studies that are truly unbiased in approach and scientific in delivery.
RTI’s focus on the health sector covers issues of both national and global importance. These include maternal & child health, communicable & non-communicable diseases, communication sciences, and gender equality. As a thought leader in the health space, the company uses objective, evidence-based solutions and cutting-edge research to address some of the most complex healthcare challenges facing Indian society.

RTI meets this goal by leveraging its deep sectoral knowledge, diverse experience and skills, and multi-disciplinary approach across implementation, evaluation, and research to inform our clients across governments, academia, development and the private sector.

**Areas of Focus**
- Cancer Research & Non-Communicable Diseases
- Neglected Tropical Diseases
- Communication Sciences including social & behaviour change communication
- Maternal & Child health

**Capabilities**
- Research
- Consulting
- Monitoring, Learning & Evaluation (MLE)
- Health Technology Innovation

RTI has teams of experts, including an oncologist of global renown, leading various initiatives in the health sector. Public health experts in epidemiology and top-notch experts in cancer research lead & form the foundation of our Health team in India.
RTI has an illustrious pedigree at the forefront of applied health research. Our mission is to improve the human condition by turning a global body of knowledge into practice. As early as 1960, RTI had achieved great renown in this field when a team of our scientists reported the discovery of a compound they termed Camptothecin found in the Pacific yew tree — Taxus brevifolia — which was found to terminate cancer cell growth, thereby saving the lives of hundreds of thousands of people diagnosed with cancer.

By isolating and identifying the structure of these novel bioactive natural products, RTI scientists have dramatically improved — and in some cases lengthened or saved — the lives of cancer patients. Taxol is a chemotherapy medication used to treat numerous cancers — ovarian, breast, lung, cervical and pancreatic among others.

Taxol, a word coined by RTI’s scientist Monroe E. Wall, is a trademark of Bristol-Myers Squibb Co. Camptothecin is a trademark of RTI.

**KEY PROJECTS**

**Research and Evaluation for Action in Child Health (REACH)**  
(Bill & Melinda Gates Foundation - Since 2014)

REACH supports the measurement, learning, and evaluation (MLE) efforts of the Gates Foundation to improve the health of children under the age of five years in India. It has a special focus on pneumonia and diarrhoea in Uttar Pradesh and Bihar. As the MLE partner, RTI works closely with the implementing partners, the University of Manitoba, Canada, and CARE, a leading global NGO. The collaborative effort aims at determining how to strengthen the quality of care provided by frontline workers and primary health facilities.

**Regional Center for Research Excellence in Non-Communicable Diseases in India**  
(National Institutes of Health, U.S. - Since 2016)

RTI is part of a consortium engaged in the design and planning of a Regional Centre of Research Excellence for Non-Communicable Diseases (NCDs) in India. The other members of the consortium are Public Health Foundation of India (PHFI) and Emory University, U.S. In-country research partners include Madras Diabetes Research Foundation; National Institute for Cancer Prevention & Research; All India Institute of Medical Sciences; Cancer Institute; and the New Delhi and Chennai cancer registries. RTI has also implemented a community engagement plan to develop a consensus on research priorities for NCD prevention and control in India.

**Center for Communication Sciences**  
(Bill & Melinda Gates Foundation et al)

RTI’s communication science experts promote informed decision-making by developing, implementing and evaluating strategic communications, interventions and campaigns for its clients. These experts examine how people seek, use, and process information and make decisions by exploring social, cultural, market, and media influences. Key projects under the Center for Communication Sciences include Evaluation of “Combating Gender-Based Violence among Youth in India through a Celebrity-Centered Digital Media Edutainment Intervention”, and “Media Advocacy for Maternal and Child health in Uttar Pradesh”.

**Sexual and Reproductive Health of Young People in India: Systematic Review of Peer Education**  
(World Health Organization — Since 2017)

In the expanded National Adolescent Health Program, peer education is one component of a package of interventions included by the Ministry of Health and Family Welfare, Government of India. RTI International - India is synthesizing the insights available to draw out the lessons learned on the inputs, process, outputs, and outcomes of these projects and programs.

RTI is expanding its focus in India to Health Technology Innovations. RTI aims to drive impact by leveraging its research and commercialization expertise to facilitate the creation of low-cost, India-centric technologies for the prevention, detection and treatment of life threatening diseases such as cancer. This includes partnering with small startups, commercial enterprises, incubators and accelerators, independent innovators, research and academic institutes and other such ecosystem players.
RTI aspires to positively impact India’s energy security scenario, including 24X7 Power for All. By utilizing indigenous resources and innovative technologies, we plan to cover both rural and urban landscapes and stakeholders in our quest for sustainable development by supporting the implementation of clean-energy solutions, affordable energy access and reduction in import dependence.

**RTI will be working in the following areas over the next five years:**

- **Clean energy technologies**, including biomass solid waste, indigenous coal, and renewables
- **Energy efficiency/energy conservation; demand-side management**
- **Reduction of transmission and distribution losses** with a view to supporting utilities’ turnaround
- **Low-emission technologies for household cooking, vehicular emission**
- **Smart grids for Smart Cities and Electric Vehicles**

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Access to Rural Energy in India, Monitoring and Evaluation
The Climate Group
RTI provided independent monitoring and evaluation (M&E) services for the Project, Bijli – Clean Energy for All, that aimed to help reduce greenhouse gas emissions and connect rural households to cheaper, cleaner and reliable renewable energy. Qualitative and quantitative data showcased findings such as project contributing to a reduction of 8,759 tons of CO₂ per year across more than 4,300 households.

AT&C Loss Reduction and DISCOM Turnaround
Uttar Pradesh Power Corporation Ltd (UPPCL and all U.P. State DISCOMs)
As the Technical Partner to a leading Energy Consulting firm, RTI is helping UPPCL DISCOMs to reduce their technical and commercial distribution losses; monitoring progress of government’s UDAY scheme-related activities using IT-enabled tools; and ushering in best-practices for DISCOM operations as suitable in the Indian context.

Off-grid Self-Healing & Sustainable DC Community Energy Solutions
Mission Innovation – India, Department of Science and Technology
In collaboration with Delhi Technological University, RTI is set to undertake a holistic social, technical and economic impact assessment – covering aspects related to connectivity, mobility, access of information/education, and access to energy – for a project that aims to design, develop, install and commission a DC off-grid system at Muserpur village in Pilibhit. The village will also be provided with telecommunication and mobility solutions. RTI’s objective is to develop a sustainable and scalable model.

Impact Assessment of R-APDRP Scheme in North Indian DISCOMs
Power Finance Corporation (PFC), Ministry of Power, Govt. of India
As the Technical Partner to a leading Energy Consulting firm, RTI is carrying out a study on the impact of R-APDRP (Restructured Accelerated Power Development & Reforms Program) implementation on Customers and Utilities across 13 DISCOMs in North India.

KEY RESEARCH AREAS

Conversion of Indian Coal to Methanol (Petrol blend) and Coal to Di-Methyl Ether (Diesel blend)
RTI has an established track record in coal gasification and syngas clean-up research. Our experts hold patents and have authored multiple publications on topics across Coal-to-Methanol value chain. We are perfectly positioned to apply our global knowledge in India by undertaking technical, commercial and economic assessment of utilizing coal for producing methanol and DME, with a view to reducing oil imports.

Second Generation Biofuels
With the launch of Biomass Policy 2018, RTI International is well poised to convert biomass (e.g.: Corn Stover) to Refinery Feedstock (Deoxygenated Bio-Crude). Our capability is established through our 1TPD biomass plant at our US-based headquarters.

Flared Gas-to-Methanol
RTI’s Micro-Reformer technology that converts flared gas to methanol aims to turn around the economics of flaring and make it viable to produce a highly valuable product (methanol) from gas otherwise wasted by flaring. India imports roughly half of its natural gas consumption (19.87 MMTPA in FY18). If even 2.8% of natural gas that is either lost or flared due to economic unviability is captured and utilized economically it will prove highly valuable. RTI’s technology is portable, requires low capex and can work without power or water.
RTI strives to improve the lives of millions of Indian citizens by providing innovative, high-quality and sustainable WASH solutions. We serve communities and support stakeholders such as governments, bilateral and multilateral agencies, foundations, industries, and NGOs by utilizing our vast global knowledge and sectoral knowledge to solve critical WASH issues.

RTI has deep global expertise in design, implementation, monitoring and evaluation (M&E) of WASH projects. We adopt a multidisciplinary approach to solve WASH problems and our strength lies in our expertise and proven research methodologies across the WASH value chain. Our expertise spans engineering, economic and statistical modelling, statistics, risk management, behaviour change, Geographical Information System (GIS), technology development and commercialization, public policy, business strategy, monitoring and evaluation, communication science, information management and gender sensitization, among others. Our assessment studies are widely recognised for unbiased approach and scientific delivery.
WASH in India

India is witnessing rapid urbanization driven by the growth of cities and the overall economic prosperity that it generates. As per census 2011, more than 30% of the country’s population of 1.21 billion people lives in cities and urban areas. It is estimated that the level of urbanization will escalate to 50% over the next two-to-three decades. Such rapid growth in the urban centers and the process of urbanization have compounded the pressure on civic amenities such as access to the WASH infrastructure and its maintenance. The lack of appropriate, gender inclusive and environmentally sound (treatment and disposal) technologies, have aggravated the challenges faced by citizens, especially in large urban slums.

With the cascading impact of such challenges, one-size-fits-all solutions are inadequate; it is imperative to develop innovative and holistic solutions across the WASH value chain. There is a dire need to foster new technologies, processes and solutions, and promote cross-learning and collaborations to drive economic reforms to benefit WASH.

KEY PROJECTS

Reinvent the Toilet (2015-2016)
Bill & Melinda Gates Foundation

RTI is contributing to this project by developing a toilet that converts human waste into combustible fuel, stored energy, and disinfected, non-potable water. This toilet does not require piped water, sewer connection and outside electricity. The development of this toilet is a landmark in improving India’s public health, environment and quality of life.

Sanitation Technology Platform (STeP), (2015-2018)
Bill & Melinda Gates Foundation

RTI has played a crucial role in the India rollout of STeP, an ambitious global project that brings transformative technologies to 2.5 billion people worldwide who have been without access to safe and affordable sanitation. STeP provides a full range of services, including field testing, market intelligence, and user insights, to help inventors and industry develop products and services that address market and consumer needs. STeP is a collaboration of global experts and organizations and eliminates risk, and streamlines the path to market, fostering greater success for its partners.

Inclusive WASH Models for Urban Slums (2018-19)
Department of Foreign Affairs & Trade

RTI is currently working with DFAT in improving community-level access to WASH services, especially for women and persons with disabilities, through a composite community-government-private-sector platform called Single Window and WASH Hub.
RTI Cities Practice is committed to supporting Government of India’s objective of making cities more resilient, sustainable and affordable by introducing bringing science to city planning and operations. RTI has been working across cities globally, serving clients by solving issues related to strong baseline data, accurate data management, and appropriate analytical and communication systems are critical for effective city planning and management. We leverage our multidisciplinary capabilities, subject matter expertise, and cutting-edge technology to create holistic, long-lasting solutions.

Focus Areas and Service Offerings Include

**Focus Areas**

- Climate Change Adaptation and Mitigation
- Water and Sanitation
- Solid Waste Management (SWM)
- City Planning, Management & Operations
- Local Governance and Capacity Building

**Service Offerings**

- Vulnerability Assessments and Action Plans
- Water and Sanitation Strategies, Tariff Fixation, Cost Recovery, Project Feasibilities, Bid Process Support for PPP Projects
- Models and Decision Support Tool (DST), Strategies for Innovative Technological Interventions
- Urban Development Plans, Evidenced Based Decision Support, Asset Management, Integrated Single Database, Cost Recovery & Governance
- Program Management Support in areas of Institutional Strengthening, Improved Service Delivery, Revenue Enhancement, Financing Plans and Promoting Private Participation
A strong baseline data, data management, and analytical and communication systems are critical for effective city planning and management. Towards this end, RTI has developed highly specialized data collection tools and simulation models that enable cities to analyze relationships among urban services, human development, economic sustainability, and environmental resilience. These tools and models support policy-and-investment-scenario planning by producing forecasts of demography, infrastructure, governance conditions and outcomes. This allows informed evidence-based decision-making, evaluating impacts of alternative technologies, refining operations and maintenance practices, and optimizing infrastructure and urban services performance.

For Solid Waste Management, RTI has developed a Municipal Solid Waste (MSW) Decision Support Tool, a standardized statistical model to evaluate the financial and environmental costs and considerations for MSW management. This can be tailored for particular waste compositions across different countries and geographies. This tool has helped over one hundred government and industry clients across the world in identifying and acting on MSW management technologies and overall strategies to effectively manage MSW in cities by capturing their unique conditions, including waste characteristics; economic considerations; environmental goals; and institutional and social factors.

RTI has also developed user-friendly data observatories, as well as software systems for permitting, asset management and public financing. These support knowledge management and institutional capacity-building for national and local governments, along with tailored solutions for private sector service providers.
RTI has been working to build an Innovation Ecosystem comprising a network of stakeholders with creativity, investable capital, and business and scientific acumen. This vision originated at the organization’s global headquarters in Research Triangle Park, U.S.A, initially formed by a network of 3 leading American universities: Duke University, North Carolina; North Carolina State University; and University of North Carolina at Chapel Hill, it transformed North Carolina from the second poorest state in the U.S.A, in terms of per-capita income, to a highly-ranked state for talent and business in present times.

The organization’s 60 year long history as the founding research institute in one of the world’s oldest and largest innovation ecosystems stands testament to its thought leadership and practitioner’s knowledge of driving innovation-led economic growth.

RTI will be working in the following areas over the next 5 years:

- **Fostering Effective Entrepreneurship Programs**: To create a culture of entrepreneurship that increases the chances of long-term success.
- **Accelerate Technology Commercialization**: To convert R&D investments into commercially valuable new products, processes and services.
- **Create Policy Infrastructure for Innovation**: Support governments to strengthen their policy tools to effectively foster growth in an innovation economy.
- **Strengthen University – Industry Alignment**: To better align university output with industry needs to produce market-ready technologies & job-ready graduates.
- **Drive Technology Adoption in SMEs**: Empower SMEs with limited resources to find & adopt technologies and processes to help them grow and thrive.

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The US Government has historically supported the Indian Institutes of Technology (IIT). In 2014, as part of an $800,000 USAID-funded Research Partnership project, Duke University and RTI provided diagnostic and capacity development assistance to help advance the new-generation IIT Gandhinagar (IITGN). This involved assessing, strategizing and compiling recommendations to improve research funding and operational and administrative procedures. The project also worked to build collaboration networks with academia, government and industry, leading to the development of IITGN’s new Research Park. RTI also helped IITGN find the right balance between teaching, research and outreach activities.

India faces challenges on both the demand and supply side in pursuance of the overall objective of the Swachh Bharat Mission to effectively manage faecal sludge and septage. For example, out of 680 MGD sewage generated per year in Delhi, only 50% is treated at centralized Sewage Treatment Plants (STPs) (2015 data). Out of the 23 STPs in Delhi, 6 STPs have utilizations ratios of below 20%.

RTI provides a full range of services on technology validation, including a field testing program in Coimbatore, Tamil Nadu, in collaboration with PSG Institute of Medical Sciences and Research. RTI’s services include cross-pollination of knowledge, compliance with local laws, market intelligence and user insights to remove risk and streamline the path to market through technology transfer.

Current Shortwave Infra-Red (SWIR) imagers are based on costly, high-purity semiconductor materials such as indium-gallium-arsenide (InGaAs). RTI International developed a quantum dot sensing technology that changes the performance-to-cost point of SWIR cameras, resulting in a lower cost sensor for a wide range of industrial applications.

Manufacturing technologies such as Die-to-Die, Die-to-Wafer and Wafer-to-Wafer technologies for 3D integrated circuits had a high Total Cost of Ownership (TCO). Ziptronix’s patented ZiBond® direct bonding and DBI® hybrid bonding technologies deliver scalable, low TCO manufacturing solutions for 3D stacking. This technology was licensed to Sony Corporation for volume production of CMOS image sensors. And in 2015, Tessera Technologies, Inc acquired Ziptronix for $39 million in cash.

NASA developed new Al-Si alloy for spacecraft propulsion which was commercialised by RTI International for Bombardier Recreation Products (BRP). The alloy enabled BRP to develop a new line of engine which created more than half a billion dollars per year in revenues.
OUR EXPERTISE

With experienced thought leaders and proven approaches, we apply a diverse set of services and capabilities across key practice areas that address the critical needs of India.

Public health
Water sanitation & hygiene
International Development
Innovation ecosystems
City Planning & Management
Energy Research

Program Design and Implementation
Research Technology Validation & Commercialization
Engineering and Technology R&D
Statistics and Data Science
Surveys and Data Collection
Evaluation, assessment, and analysis

Collaboration being a core institutional value, we aim to continue partnering with other Indian organizations and institutes that mirror the same value system and bring complementary expertise.

For more information about our organization and our projects in India, please contact Anshuman Sharma at 011-41287175, or write to us at asharma@rti.org.

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