

Where in the world is RTI



INTERNATIONAL DEVELOPMENT

BIMONTHLY APRIL/MAY 2009

Starting Up

A Complicated Relationship: Women's Empowerment and Domestic Violence in India



The Samata team reviews study protocols and instruments to prepare for the launch of data-collection activities. [Photo: Samata Health Study staff]

Although considerable research has documented the widespread prevalence of domestic violence in India, little is known about specific risk or protective factors. With funding from the U.S. National Institute of Child Health and Human Development, the Samata Health Study is characterizing the nature of gender-based power and its association with domestic violence among young married women in urban, low-income communities.

The Samata Health Study was initiated in 2003 by RTI's Women's Global Health Imperative, which joined RTI in 2007 from the University of California, San Francisco. The study has been implemented in collaboration with the Center for Public Policy (CPP) at the Indian Institute of Management–Bangalore, and includes both qualitative and quantitative components. In the quantitative component, 744 young married women were followed for two years to examine the relationship between gender-based power—measured at the individual, couple, household, and community levels—and domestic violence.

Unadjusted and adjusted multivariate logistic regression models were used to determine factors associated with having been hit, kicked, or beaten by one's husband in the previous six months. An advance release of the results, published in the *International Journal of Epidemiology* in October 2008, shows that over half (56%) of the study participants had experienced

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Targeting HIV Prevention to Botswana's Most-at-Risk Populations

The Cairo–Cape Town Highway snakes through Eastern Botswana, a hotbed for HIV transmission. Female sex workers from surrounding towns find clients in the transient populations traveling this route—truckers, miners, military personnel. Young girls engage in sex with much older men in exchange for cash or other amenities, creating a risky power dynamic when it comes to negotiating safe sex. HIV prevalence among girls 15–24 years old is nearly three times that for boys *continued on page 4*

Enabling Businesses in El Salvador

El Salvador has made great advances in improving its business environment in the past several years. According to the World Bank's Doing Business 2009 report, four years ago it took 115 days and 12 distinct steps to launch a business in El Salvador, and impressively today the process has been reduced to just 17 days and 8 steps. At least five times as many businesses have registered annually since these reforms. However, the economic growth across the country has not been even, and in particular has left much of the northern region living below the poverty line. To attract businesses and private investment to municipalities across the country and achieve more even, broad-based economic growth, local government



During a focus group session, representatives of Salvadoran businesses, including small businesses such as this grocery store, named problems in the legal framework, lack of transparency and easy access to information, and poor quality of municipal services as key obstacles to growth. [Photo: Haden Springer]

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Turning China's Greenhouse Gas into Clean Energy

While carbon dioxide shoulders the blame as the greenhouse gas most responsible for climate change, its less-talked-about cousin methane is also quietly warming the planet.

Methane is 23 times more potent than carbon dioxide (CO₂) at trapping heat. However, it lingers in the atmosphere for only 12 years, while CO₂ hangs around for a century.

"Since the level of methane in the atmosphere adjusts relatively quickly, we can mitigate global warming in the near term by reducing methane emissions," said Mike Gallaher, director of RTI's Technology, Energy, and Environment program.

That's not all. "Methane is a primary component of natural gas, so by cutting emissions and recovering that methane we are capturing a source of clean energy," Gallaher said.

Through a multi-country initiative, RTI is helping oil and natural gas industries in China to use proven technologies for recovering methane before it is lost into the atmosphere.

Methane to Market

China and the United States are ranked first and third, respectively, among the world's emitters of methane, according to the U.S. Environmental Protection Agency (EPA).

However, they are working together under the EPA's Methane to Markets Partnership to recover and use their methane emissions to mitigate global warming, strengthen energy security, enhance economic growth, and improve environmental health and safety.

The partnership was founded in 2004 by 14 countries that account for 60% of global methane emissions. It promotes methane recovery from four main sources: agriculture, coal mines, landfills, and oil and gas systems.

Through a grant from the Methane to Markets program, RTI is collaborating with the China University of Petroleum (CUP) in Huadong to help China's oil and gas industries detect and recover methane leaked during production, processing, transmission, and distribution of these fuels.

"China's oil and gas industries are relatively modern," said Gallaher, who directs RTI's work with CUP. "But there are still great opportunities for improved methane recovery, primarily around equipment maintenance."

Proven Ways to Stop Leaks

In December 2008, RTI and CUP co-authored a peer-reviewed study of the potential to apply international best practices in methane leak detection and reduction in China. They analyzed more than 80 technologies and practices recommended by U.S. oil and gas industry partners through the EPA's Natural Gas STAR program and ranked them according to the magnitude of emission reduction potential, availability of equipment and skilled labor, and cost effectiveness.

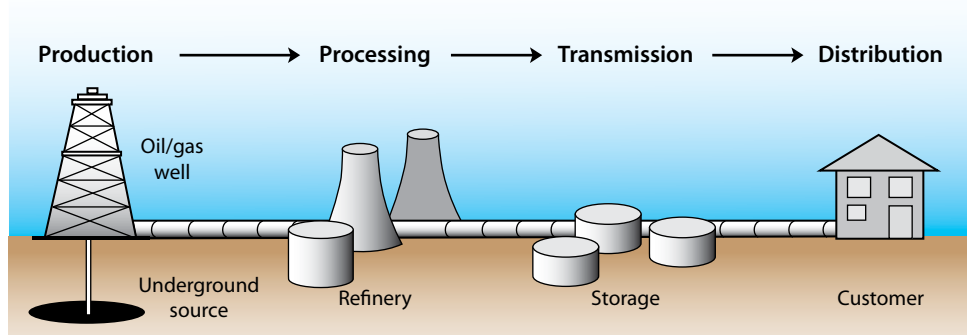
"We conducted a cost-benefit analysis to recommend those technologies and practices that make the most economic sense for China based on equipment and labor costs for the corresponding level of reduced emissions," said Jeff Coburn, an RTI senior research chemical engineer who contributed to the study.

Based on this analysis and interviews with Chinese oil and gas field managers, RTI and CUP recommended five priority technologies or practices for each industry sector: production, processing, transmission, and distribution.

In production, for example, the study recommended retrofitting oil storage tanks with equipment to capture methane vapor. Raw gas is often found with oil in the same underground formations. The crude oil and gas are pumped through pressurized pipelines into unpressurized storage tanks, where methane that was dissolved in the oil vaporizes and gets leaked or vented into the air.

"By installing vapor recovery units, oil and gas companies can capture this methane and process it into natural gas," Coburn said.

In the refining process, unintended leaks from valves, connections, and other components can develop over time



Methane's journey, from extraction to delivery as a fuel. Methane can be recovered at all of these points.

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China's Greenhouse Gas (continued)

due to pressure, corrosion, and other causes. The same risks of leakage apply in the transmission of natural gas to city regulators and propane plants and subsequent distribution to consumers. "Many small leaks amount to significant methane losses," said Gallaher.

Detecting these odorless and invisible methane leaks is the first step to repairing them. Current practice in China's oil and gas industry relies on combustible gas detectors for identifying leakage accidents. RTI and CUP recommended direct inspection and maintenance (DI&M) of equipment on a systematic basis using leak detection devices—such as ultrasound detectors, infrared cameras, or "sniffing" devices—that can show the inspector exactly where the leak is and calculate its flow rate.

"The DI&M process and detection technologies would allow the oil and gas companies to monitor their equipment for leaks and spend their resources wisely to repair the most significant leaks first," Gallaher said.



During the processing of oil and natural gas, methane leaks out from refinery equipment that is corroded or poorly installed. Directly inspecting the equipment with leak detection devices can help engineers identify and repair the worst leaks.

Changing Practices

RTI and CUP's recommendations were presented to a panel of international and Chinese environmental scientists and industry experts in April 2008. The project is now in the process of recruiting Chinese oil and gas companies to conduct demonstration projects using recommended technologies from the study.

"We hope that by applying these technologies in a small way, the companies will see the economic, social and environmental benefit of methane reduction and will roll out the technologies across their organizations and the industry," Gallaher said.

The "Triple Bottom Line" to Methane Recovery and Use

Financial—Create New Fuel: Recovered methane can be processed into natural gas, a clean energy source that would have been lost.

Social—Slow Global Warming: Methane emissions can be significantly reduced with currently available, cost-effective technologies and can help slow global warming over the near term on a scale comparable to reductions of carbon dioxide emissions.

Environmental—Cut Pollution: Natural gas can improve air quality by offsetting the use of coal, which releases more pollutants (and greenhouse gases) into the atmosphere.

In addition, RTI's partnership with CUP, China's leading academic and research institution in petroleum engineering, will transfer the lessons of the Methane to Markets project to the next generation of Chinese engineers.

"Today's students will know the importance of and techniques for detecting and reducing methane emissions when they become tomorrow's field managers in the oil and gas industries," Gallaher said.

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Enabling Businesses in El Salvador (continued)

administrations and regulatory frameworks need to be modernized.

To address this issue, RTI International is partnering with the Escuela Superior de Economía y Negocios (ESEN) to implement the United States Agency for International Development (USAID) project, Promoting Economic Opportunities Program: Municipal Competitiveness Ranking. The project is assessing and ranking the country's 100 most populous municipalities on their regulatory and business-enabling environment, including transparency and access to information, entry costs, crime and costs of security, and proactiveness of local governments to encourage and stimulate growth of local businesses.

The outcome of this assessment will be a ranking tool that can be used by businesses and business associations to advocate for improved local policies and procedures. Municipal and central governments, as well as the donor community, will be able to use the tool to identify best practices among Salvadoran municipalities and to reduce constraints to private sector development across the country. At a recent launch event of the project, USAID/El Salvador Office of Economic Growth Director Lawrence Rubey noted, "By ranking municipalities on a variety of indicators, the project will create competition among municipalities to improve local policies that spur development and create jobs."

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Targeting HIV Prevention in Botswana (continued)

of the same age group. Here, one quarter of adults are infected with HIV.

The government of Botswana is committed to reducing the burden of the disease, but HIV prevention strategies have not sufficiently targeted most-at-risk populations (MARPs), such as female sex workers and their clients, girls in transactional or cross-generational sex, or mobile populations, until now.

Under the support for the HIV Response in Botswana with the Civil Society for HIV Prevention that Targets Most-At-Risk Populations (MARPS), a 5-year project funded by the U.S. Agency for International Development, RTI will assist the Government of Botswana to improve the quality and quantity of HIV prevention services for MARPs while building the capacity of civil society organizations (CSOs) to deliver these services. The project will work primarily in the towns of Gaborone, Francistown, Selebi-Phikwe, and Kasane, along the highly trafficked corridor.

“We’re working with populations who have not previously been the focus of assistance,” said Doris Macharia, RTI’s technical manager. “There has been research devoted to them, but well-coordinated program interventions have not yet been developed.”

In conjunction with existing CSOs, the program will develop specific community-based interventions for each of the three targeted populations. RTI will combine experience working on similar projects in Uganda, South Africa, and Zambia with local research to develop intervention models for female sex workers that could be scaled up as international best practices.

Interventions include preventive strategies, such as helping vulnerable women avoid the sex trade, teaching condom

negotiation skills, and introducing methods to assist women in exiting sex work, as well as working to bring services, such as voluntary counseling and testing (VCT), closer to target populations.

RTI will also work with local partners to leverage their relationships with national networks to identify, strengthen, or develop referral systems and linkages among CSOs and key government counterparts to ensure that HIV-positive clients receive a full continuum of prevention-to-care services.

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Women’s Empowerment and Domestic Violence (continued)

domestic violence, with 27% reporting occurrence in the previous six months. Factors associated with increased risk of violence included being in a “love” marriage (as opposed to a marriage arranged by family), being asked for additional dowry after marriage, participation in social groups, and participation in vocational training after marriage.

Currently, the project is exploring the acceptability, feasibility, and effectiveness of a multisectoral approach to enhancing women’s power and preventing domestic violence, including building the capacity of primary care providers to better respond to violence against women with counseling and other support; empowering mothers- and daughters-in-law to resist and cope with family violence; and engaging with men to address the impact of gender norms and poverty on men’s perpetration of violence against women.

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Selected Publications

Bland, Gary, and Cynthia J. Arnson (Eds.). (2009). *Democratic Deficits: Addressing Challenges to Sustainability and Consolidation Around the World*. Washington, DC: Woodrow Wilson International Center for Scholars and RTI International. RTI contributions include the Introduction, by **Gary Bland**; and a chapter on “Civil Society and Successful Accountability in Peru,” by **Luis Chirinos**.

http://www.wilsoncenter.org/topics/pubs/Democratic_Deficits2.pdf

Subramanian, Sujha, Rengaswamy Sankaranarayanan, **Bela Bapat**, Thara Somanathan, Gigi Thomas, Babu Mathew, Jissa Vinoda, and Kunnambath Ramadas. (2009). “Cost-Effectiveness of Oral Cancer Screening: Results from a Cluster Randomized Controlled Trial in India.” *Bulletin of the World Health Organization*, 87(3): 161–244.

Luseno, Winnie K., and **Wendee M. Wechsberg**. (2009). “Correlates of HIV Testing among South African Women with High Sexual and Substance-Use Risk Behaviours.” *AIDS Care*, 21(2): 178–184.

Where in the World Is RTI is a bimonthly publication of RTI’s International Development Group (IDG). This publication is intended to inform clients and partner organizations about RTI’s global activities and research areas. RTI is dedicated to improving the human condition in developing and emerging countries. RTI has worked for over 40 years in 140 countries around the world. We offer a broad range of policy support, applied research and analysis, and other technical expertise in strategic planning, institutional development, and training. Our expertise is multisectoral and spans the fields of education, health, environment and natural resources, governance, finance, and information and communication technology.

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