Limited access to safe water, lack of sanitation and poor hygiene threaten the lives of three billion people, says Jamie Bartram, PhD, Holzworth Distinguished Professor of environmental sciences and engineering and director of The Water Institute at UNC. Bartram tendered the figure in response to the 2012 UNICEF/World Health Organization report (tinyurl.com/2012-water-report), which underestimates how many global water sources are endangered by sanitation issues. Unsafe water and poor sanitation kill more young children every year than malaria, AIDS and accidents combined, he says.

“Over one million children die from diarrhea every year, and 90 percent of those deaths could be averted through better water, sanitation and hygiene (WaSH),” says Peter J. Kolsky, PhD, who joined the Institute in June as its associate director and Professor.
“Finding out what water and sanitation facilities communities actually use is surprisingly challenging, before and after projects. Doing so is critical to the design and implementation of effective programs. Sharing global experience in monitoring and evaluation increases quality and reduces cost,” says Kolsky, a former senior water and sanitation specialist at The World Bank.

The vision of The Water Institute is to bring together individuals and institutions from diverse disciplines and sectors and empower them to collaborate on critical global issues in water and health, including water scarcity and sharing, climate change and others. The Institute supports nonprofit Plan International USA (tinyurl.com/PlanUSA-WASH) by assessing promotional efforts for sanitation issues and also helps evaluate the impact of the Conrad N. Hilton Foundation’s water initiatives (www.hiltonfoundation.org). Its presentation of the annual Water and Health Conference in October is central to the Institute’s vision for research, teaching and dissemination of knowledge. (See whconference.unc.edu.)

Biostatistics: Changing the Practice of Medicine
Former biostatistics professor Lisa LaVange, PhD, directed the oldest continuously funded National Institutes of Health coordinating center at UNC from 2005 to 2011. The Collaborative Studies Coordinating Center (CSCC), founded in 1971 in the UNC biostatistics department, has a rich history and tradition of conducting clinical trials and epidemiological studies.

“Biostatistics and epidemiology faculty members work with statisticians, programmers and project managers to design and conduct complex national and international studies,” LaVange says. “These provide immeasurable improvements in people’s lives globally.”

Early on, the CSCC documented benefits of lowered cholesterol in reducing morbidity and mortality. Its longest-running study, Atherosclerosis Risk in Communities, has produced more than 1,000 manuscripts relating heart disease to risk behaviors and clinical and genomic factors. Data now are being used to identify predictors of neurocognitive functioning during aging. Today, studying health disparities among Hispanics of various backgrounds, the CSCC plays an integral role in identifying and reducing risks for disease, thus changing the practice of medicine.

Health Behavior (HB) Capstone projects focus students on achieving real-world changes while taking part in mentored service and learning opportunities,” says Megan Ellenson Landfried, MPH, manager of the department’s Master of Public Health program. “Each project strengthens partnerships between UNC and local communities.”

The projects are as varied and complex as the teams of HB Master of Public Health candidates who apply their education, experience and passion to make the projects happen. For an entire academic year, teams of four or five students develop or improve public health programs, services and resources by collaborating with a dozen community organizations. Competition from nonprofit groups applying to become Capstone partners is fierce, Landfried reports.

Capstone projects in North Carolina have contributed to Orange County’s Master Aging Plan, El Pueblo Inc.’s adolescent reproductive health curriculum, the Northern Orange Partnership for Alcohol and Drug-Free Youth’s Social Norms marketing campaign materials and North Carolina Coalition Against Domestic Violence’s statewide primary prevention plan for intimate partner violence.

To learn more about the program, visit www.sph.unc.edu/hb/capstone.

—JB Shelton
“Whether examining links between indoor air pollution and respiratory disease in the United Arab Emirates, or comparing harmful antipsychotic side effects in treating schizophrenia,” LaVange says, “project teams use state-of-the-art data collection systems and apply cutting-edge methodologies.”

LaVange left UNC in October 2011 to direct the Office of Biostatistics in the U.S. Food and Drug Administration’s Center for Drug Evaluation and Research. Read more about CSCC at www.cscc.unc.edu. Read about the center’s new director, Sonia Davis, DrPH, on page 48.

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**Dr. Hajime Kanamori – A Belief in ‘Kizuna’**

“I believe in kizuna, the idea of bonds and connections between people,” he says. “We received supplies, prayers and support from international rescue and medical teams. Japan will recover and rebuild better with our efforts and the global community’s help. I thank the world from the bottom of my heart."

Kanamori earned a certificate in field epidemiology at UNC’s public health school in 2011 and a Master of Public Health in Public Health Leadership in 2012. A physician at Tohoku University’s Graduate School of Medicine, he works to prevent and control infectious diseases.

“Through my practicum at UNC, I came to understand the role of infection control and outbreak investigation in challenging situations such as the Great East Japan Earthquake,” Kanamori said. “I also learned how UNC hospitals reduce health-care-associated infections and learned the basic skills of hospital epidemiology. That will be of great help in promoting better infection control activities at my hospital.”

—— JB Shelton
Thanks to the entrepreneurial spirit of faculty members and students, research from UNC Gillings School of Global Public Health labs is finding its way to market.

Don Holzworth, MS – entrepreneur and founder of multiple global health companies, including Constella Group LLC – knows what it takes to develop a thriving business from a good idea. As the School’s executive in residence since 2009, Holzworth provides support, feedback, and sometimes, a reality check for those who want to translate research discoveries into commercial applications.

“I understand firsthand the challenges faced by people who have a dream but don’t know how to make it into a reality,” Holzworth says. “I guide students and faculty members through the steps involved in transforming an idea into a revenue-producing enterprise, including developing a business plan, refining business presentation skills and understanding markets.”

During Holzworth’s tenure at the School, faculty members have incorporated three companies: Aquagenx LLC, BioDeptronix LLC and ImmunoBenefit.

Aquagenx offers an accurate, easy-to-use and affordable method of water-quality testing.

“Our goal is to become the go-to water-quality test for anyone who conducts testing in the developing world,” says Mark Sobsey, PhD, Kenan Distinguished Professor of environmental sciences and engineering (ESE). Sobsey founded the company with alumnus Lanakila “Ku” McMahan, PhD. Current ESE doctoral student Alice Wang is a principal member of the company. In April, Aquagenx received the first-place prize in Carolina Challenge, a business and social venture competition designed to promote entrepreneurship at UNC.

Will Vizuete, PhD, ESE associate professor, is co-founder of BioDeptronix (www.unc.edu/~vizuete), which offers a device that can test air toxicity.

“We developed this method, which uses human lung cells as part of the testing, in our lab,” Vizuete says. “Our technology offers more accurate results in a shorter time.”

ImmunoBenefit (immunobenefit.com), founded by nutrition professor Melinda Beck, PhD, is a contract research organization that exclusively tests food, food supplements and beverages to determine whether they contain the immune system benefits they promise. “Ultimately, I would like our company to be the “Good Housekeeping Seal” for immuno-enhancing properties,” Beck says. “That would allow consumers to be confident that a product actually has health benefits.”

Sanitation Creations (sanitationcreations.com), which develops environmentally friendly sanitation solutions, is another company with roots in the School. The group designed the Dungaroo, a waterless, easy-to-empty, cost-efficient retrofit for existing portable toilets. The product seals waste in odor-blocking bags and turns it into safe-to-use fertilizer.

HEALTHY KIDS, HEALTHY COMMUNITIES
One-third of children and adolescents in the United States are overweight or obese, a condition associated with hypertension, diabetes, psychosocial and orthopedic problems.

“In the past few decades, overweight and obesity rates have skyrocketed, particularly in low-income communities and among people of color,” says Sarah Strunk, MHA, director of Active Living By Design (active-livingbydesign.org) and Healthy Kids, Healthy Communities (HKHC). “Many neighborhoods lack safe and accessible spaces for physical activity and play, and healthy food may not be readily available.”

HKHC is a five-year, $33.4 million national program of the Robert Wood Johnson Foundation that launched in 2008. The Foundation chose Active Living By Design, based at the School’s North Carolina Institute for Public Health, to lead the program. “The Institute is the cornerstone of our school’s...
outreach in service to improve public health in North Carolina and the nation,” says Institute director Anna P. Schenck, PhD, who is also associate dean for practice at the School. “ALBD cultivates and supports integrating physical activity and healthy eating into daily life.”

HKHC works with multidisciplinary community partners to implement obesity-prevention strategies in populations at greatest risk. Initiatives include working with corner store owners to increase healthy food availability, effecting agreements to open school playgrounds to residents after hours and developing safe, inviting routes to schools and parks. Impacted communities range from rural Nash County (N.C.) to Chicago.

“This investment in nearly 50 communities is helping to improve the lives of children across the country,” Strunk says. “They are growing up in a culture that gives them the ability to make healthier choices and contributes to a brighter future.”

Learn more about the HKHC program at tinyurl.com/ALBD-healthykids.

— JB Shelton

or bio-gas. Liz Morris, MS (2011), conducted the original research for her master’s thesis in ESE, under the guidance of Jamie Bartram, PhD.

“We recently won the Cherokee Challenge [which funds high-impact environmental business ventures],” Morris says. “We are excited to have acquired our initial investment.”

The School is mindful of conflicts that can arise when research at the university is combined with product development partnerships in industry.

“Conflicts of interest (COI) are going to occur,” says Sandra Martin, PhD, associate dean for research at the School. “That doesn’t mean the researcher has done anything wrong.”

She says School leaders are dedicated to transparency. “Our COI committee, chaired by ESE professor Dr. Leena Nylander-French and including a representative from each department, helps faculty members assure that their work adheres to federal, university and other COI guidelines.”

RIS offers a wealth of information online (www.sph.unc.edu/accelerate). The group also invites speakers to the School from UNC Kenan-Flagler Business School, UNC Office of Technology Development and other entrepreneurial endeavors.

School personnel also offer training in intellectual property. Dixon McKay, a Carolina law student and School intern, helps organize seminars and publicize UNC resources to educate researchers about trademarks, patents, copyrights, trade secrets and other legal issues in business. “We want to help entrepreneurs understand what they can and can’t protect,” McKay says.

— Michele Lynn