

Summary of Professional Experience

Dr. Poulos, a Senior Economist in RTI's Health, Social, and Economics Research division, has over 10 years experience conducting survey research in developing countries to support the assessment of willingness to pay and demand for products and services, cost-benefit analyses, and impact evaluation studies to support policy decisionmaking in environmental health and water and sanitation. She has directed research projects funded by the World Bank, the Acumen Fund, PATH, the International Vaccine Institute, the U.S. Environmental Protection Agency, and the Coastal Response Research Center. She has led or participated in survey research in Ethiopia, Bangladesh, Vietnam, China (Hebei and Guangxi Provinces), Indonesia, and India (in the city of New Delhi and the states of Andhra Pradesh, Maharashtra, and Orissa). These studies fall into three overlapping research areas. The first is impact or program evaluation using randomized and quasi-experimental research designs to measure the impact of interventions in water and sanitation and in the environment. The second is measuring the willingness to pay, demand, and predicted uptake of water and health interventions including community water treatment systems, vaccines (typhoid fever, cholera, malaria, HIV/AIDS), and insecticide treated mosquito nets. The results are often used to assess the sustainability of scaling up programs. The third is practical methods for non-market valuation, including measuring willingness to pay, costs of preventive behaviors, and costs of illness. Because of differences in the economic conditions that prevail in developed and developing countries, economic methods created for use in developed countries may be inappropriate and require adaptation to generate meaningful and robust results in developing countries. Dr. Poulos has published her research in peer-reviewed journals, including *Environmental Science and Technology*, *Resource and Energy Economics*, *Journal of Development Economics*, *Journal of Health, Nutrition, and Population*, *Health Policy and Planning*, and *Value in Health*. She is a member of the American Economic Association, the Association of Environmental and Resource Economists, and the International Health Economics Association.

Education

Ph.D., Public Policy, University of North Carolina at Chapel Hill, 2000

Dissertation: *Three Essays on Nonmarket Valuation in Less Developed Countries*

Advisor: Professor Dale Whittington

B.A., Environmental Studies, *Magna Cum Laude*, with Honors, University of Rochester, 1992

Project Leadership Experience

- “Preparation of Training Materials and Delivery of Training in Impact Evaluation in the Water Sector” (The World Bank, Middle East and North Africa Program)
 - “Formative Household Research Point-of-Use Household Water Treatment and Storage Products for Low- and Middle-Income Populations in Two States in India” (PATH, Bill and Melinda Gates Foundation)
 - “Monitoring and Evaluation of Health and Socio-Economic Impacts of Water and Sanitation” (The Acumen Fund, Bill and Melinda Gates Foundation)
 - “The Economics of Environmental Vulnerability: Epidemiology, Household Status, and Air Pollution” (United States Environmental Protection Agency)
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- “Guidelines for Monitoring and Evaluation of the Water and Sanitation Sectors” (The World Bank, Energy and Water Department)
- “Economics of Environmental Epidemiology” (RTI International, Internal Research and Development Grant)
- “Technical Assistance for Impact Assessment Study of Financial Services in Rural Areas of Serbia” (The World Bank)
- “Technical Assistance for Impact Assessment of Albania’s Agricultural Services Project” (The World Bank)
- “Economic and Policy Analyses of Vaccination Program Alternatives for Typhoid and Cholera in ‘Diseases of the Impoverished’ Countries” (International Vaccine Institute and Bill and Melinda Gates Foundation)
- “Studies of Household Demand for New Vaccines for Typhoid and Cholera in “Diseases of the Impoverished” Countries (International Vaccine Institute and Bill and Melinda Gates Foundation)
- “Studies of Household Demand for New Vaccines for Typhoid and Cholera in ‘Diseases of the Impoverished’ Countries (International Vaccine Institute and Bill and Melinda Gates Foundation)
- “The Value of Preventing Malaria in Tigray, Ethiopia” (World Health Organization, Tropical Disease Research)
- Natural resource damage assessment cases for the National Oceanic and Atmospheric Administration’s Damage Assessment Center. Cases brought under the Oil Pollution Act, CERCLA, and National Marine Sanctuaries Act.

Professional Experience

2004 to date	RTI International, Environmental and Natural Resource Economics, Research Triangle Park, NC <u>Senior Economist</u>
2001 to 2004	Joint appointment in Department of Agricultural Economics and Harry S. Truman School of Public Affairs, University of Missouri-Columbia, Columbia, Missouri <u>Assistant Professor</u> (Tenure-track position)
2001 to 2004	Community Policy Analysis Center (CPAC), University of Missouri-Columbia <u>Project Associate</u>
2000 to 2001	North Carolina State University, Department of Agricultural and Resource Economics, Center for Environmental and Resource Economic Policy, Raleigh, NC <u>Post-Doctoral Fellow</u>
1996 and 1999	The World Bank <u>Consultant</u>

1992-94 and 1996-98	University of North Carolina, Chapel Hill, NC <u>Research Assistant</u>
1995 to 2000	National Oceanic and Atmospheric Administration, Damage Assessment Center <u>Economist</u>
1993	The World Bank, Water and Sanitation Division <u>Intern</u>
1992	Resources for the Future <u>Intern</u>

Honors

Phi Beta Kappa, 1992

Pi Alpha Alpha, National Honor Society for Public Affairs and Administration, 2002

Professional Associations

International Health Economics Association

Journal Referee

Resource and Energy Economics

Water Resources Research

World Development

Technical Experience

Rigorous Impact Evaluation

Provided technical assistance in the research design and implementation of a World-Bank-administered impact evaluation of an agricultural services project in Albania. The study is using mixed methods and a combination of secondary data collection, survey research, and difference-in-difference estimation to measure treatment effects.

Leading preparation and implementation of training course in impact evaluation for water and sanitation professionals in the World Banks Middle East and North Africa Division.

Provided technical assistance in the research design and implementation of a World-Bank-administered impact evaluation of a rural financial services project in Serbia. The study used a quasi-experimental research design, a combination of secondary data collection and household survey research, and

difference-in-difference estimation to measure the impacts of rural financial services. Co-authoring manuscript reporting the study design and results.

Lead author for the World Bank's guidelines on impact evaluation in the water and sanitation sector.

Leading a multi-year cohort study to evaluate health and socioeconomic impacts of market-based community water treatment systems in Andhra Pradesh, India. Implementing a quasi-experimental observational study of 2,500 households from matched treatment and control communities and a qualitative assessment of project implementation and the pathways through which impacts arise. Designed household and community survey instruments. Using difference-in-difference estimators to measure treatment effects.

Participating in a multi-year cohort study to evaluate child health impacts of water, sanitation and hygiene interventions in rural Maharashtra, India. This is a quasi-experimental observational study of approximately 10,000 households from matched treatment and control communities. Co-designed the household, community, and water quality survey instruments to obtain health and treatment information from individuals, households and villages. Participating in difference-in-difference estimation of the results and co-authoring reports and academic publications.

Participating in a multi-year community randomized trial to evaluate child health impacts of information, education and communication campaign on private sanitation in rural Orissa. Co-designed the household and community survey instruments to obtain health and treatment information from individuals, households and villages. Participated in analysis and the co-author of reports and academic manuscripts.

Led study using quasi-experimental research design and difference-in-difference estimation to measure the economic impact of the construction of an loop highway in Raleigh, North Carolina. Study measured the impact by the changes in residential home values and relied on extensive background research in order to control for selection bias.

Economic Analysis of Water and Sanitation, Environmental Health, and Development Policies

Conducting formative household and market research in Andhra Pradesh, India to gain an in-depth understanding of consumers' perceptions, attitudes, knowledge and practices related to household water treatment, storage and use. Designing a study of about 2,000 households incorporating household surveys, in-depth interviews, focus group discussions, water quality testing, and household observation. The objective of the study is to explore the factors that influence middle- and low-income households water treatment and storage behaviors in order to strategies to increase the uptake and use of household water treatment and storage products among low- to middle-income consumers in India.

Evaluating the economic impacts of typhoid fever, cholera, and shigellosis in seven Asian countries (i.e., Bangladesh, China, India, Indonesia, Pakistan, Thailand, Vietnam) by measuring private and public costs of illness. Measuring private market demand (and willingness to pay) for new generation vaccines for typhoid fever and cholera using stated preference methods (contingent valuation and choice modeling). The results of these studies are being used to support real-time, country-specific analyses of the trade-off between vaccination programs, other health interventions, and environmental policies. Results presented in meetings with high-level decision makers in the study countries.

Measured private cost of illness due to cases of typhoid fever and paratyphoid fever in an urban slum in New Delhi, India. Results used in economic analyses of alternative typhoid fever immunization programs.

Designed, implemented, and analyzed a contingent valuation study to measure the economic benefits of preventing malaria in households in northern Ethiopia. The study measured the demand for a hypothetical malaria vaccine to measure the value of completely preventing the disease. It also measured the demand for insecticide-treated mosquito nets, which reduce but do not eliminate the risk of disease. Finally, the study measured the direct and indirect costs households experienced during the most recent episode of malaria in their household. The results of the study were designed to be used in a cost-benefit framework for selecting among alternative health programs. Also, they were to be used to inform the target populations and prices for a health program that distributed bednets to the rural poor.

Authored a paper on the demand and supply for malaria control to guide priority setting for The World Bank/World Health Organization's Roll Back Malaria Program.

Analyzed household preferences for programs to improve health, education, and water and sanitation programs in Tanzania, using data from a national household survey. Measured the economic impacts of malaria and estimated private demand (willingness to pay) for malaria prevention.

Evaluated progress toward achieving cost recovery goals in World Bank water supply and sanitation projects implemented between 1990 and 1993.

Evaluation of Environmental and Natural Resource Policies

Evaluated the economic and social science research on attitudes toward genetically modified foods with a grant from the Illinois-Missouri Biotechnology Alliance.

Analyzed the economic impacts of land use changes associated with large public infrastructure projects. Used hedonic price analysis to measure the economic impact of changes in land use patterns from 1970–1998.

Studied new technologies to reduce pollution of North Carolina surface waters with animal waste.

Used nonmarket valuation methods to value economic losses due to oil spills and hazardous chemical releases. Applied revealed preference and stated preference techniques for measuring economic benefits to measure the economic damages associated with environmental injury due to oil spills and hazardous chemical releases in marine environments.

Co-authored federal policy guidance documents and agency position papers on natural resource damage assessments.

Designed and implemented a contingent valuation study to measure the economic benefits of the National Estuary Program's management plan for Galveston Bay. Analyzed data and co-wrote final report. The survey interviewed a sample of residents from countries surrounding Galveston Bay. The benefit measures reflected both use and nonuse values of environmental quality improvements due to the management plan. The study also measured use values due to improvements in recreational fishing, boating, wildlife viewing, and hunting. The results were designed to be used in the selection among alternative management plans.

Studied the policy implications of the research on the health impacts of electromagnetic fields. Co-developed an economic model to determine efficient siting of electric power distribution lines.

Survey Research and Design

Leading a study to collect data from 2500 households on health, water, sanitation, and hygiene practices and services, as well as socioeconomic status in Andhra Pradesh, India. Collaborating with a local survey research firm, a private firm constructing community water treatment systems, and an NGO involved in social marketing of the systems. Designing household, community, and water quality survey instruments, facilitated focus groups, managed project.

Measured private demand and WTP for new generation vaccines against typhoid fever and cholera in collaboration with the International Vaccine Institute and local collaborators. Designed household survey and research design in Lingchuan County, China; North Jakarta, Indonesia; Hue, Vietnam; Karachi, Pakistan; Kolkata, India. Trained enumerators, supervised sampling, and managed project in Lingchuan County and North Jakarta.

Measured private cost of illness due to culture-confirmed cases of typhoid fever, cholera, and shigellosis in collaboration with the International Vaccine Institute and local collaborators. Designed household surveys and research design in Dhaka, Bangladesh; Hechi, China; Zhengding, China; Kolkata, India; North Jakarta, Indonesia; Karachi, Pakistan; Bangkok, Thailand; Hue, Vietnam; Nachang, Vietnam.

Collected data to measure the private demand for malaria control programs in collaboration with the Tigray Malaria Control Department. Designed household survey, trained enumerators, generated samples, and managed fieldwork in Ethiopia. In-person interviews were conducted in 900 households in 18 villages in the Tigray region of Ethiopia.

Designed a survey and study to measure WTP for environmental remediation projects to reduce air pollution and environmental lead levels in Bulgaria.

Collected data on WTP for environmental quality improvements in Galveston Bay. Used the contingent valuation method, designed household survey instruments, designed mail survey strategy, and trained interviewers.

University Service

Serves (or has served) on the Ph.D. and M.S. thesis committees of ten graduate students in the departments of agricultural economics, city and regional planning, public policy analysis, and environmental science and engineering at the University of Missouri-Columbia and the University of North Carolina at Chapel Hill.

Presents guest lectures on nonmarket valuation, natural resource damage assessment, health, and development economics at departmental research seminars and workshop series.

Teaching Experience

Taught international trade and policy, economics for public policy, economic and statistics for incoming graduate students, benefit transfer workshop, land use economics and cost-benefit analysis, and introduction to public policy analysis. Students include undergraduates, master's students, Ph.D. students, and bureaucrats from U.S. federal agencies and ministries in developing countries.

Peer-Reviewed Journal Articles

- Valdivia, C. and C. Poulos. *forthcoming*. Factors affecting farm operators' interest in incorporating riparian buffers and forest farming practices in northeast and southeast Missouri. *Agroforestry Systems*.
- Guh, S., X. Chen, C. Poulos, Q. Zhang, C. Jianwen, L. von Seidlein, C. Jichao, X. Wang, X. Zhanchun, A. Nyamete, D. Whittington, and J. Clemens. 2008. "Comparison of Cost-of-Illness with Willingness-to-Pay Estimates to Avoid Shigellosis: Evidence from China." *Health Policy and Planning*. 23: 125-136.
- Whittington, D., C. Suraratdecha, C. Poulos, M. Ainsworth, V. Prabhu, and V. Tangcharoensathien. *forthcoming*. "Household Demand for Preventive HIV/AIDS Vaccines in Thailand: Do Husbands' and Wives' Preferences Differ?" *Value in Health*.
- Beach, R.H., C. Poulos, and S.K. Pattanayak. *forthcoming*. "Farm Economics of Bird Flu." *Canadian Journal of Agricultural Economics*.
- Beach, R.H., C. Poulos, and S.K. Pattanayak. 2007. "Agricultural Household Response to Avian Influenza Prevention and Control Policies." *Journal of Agricultural and Applied Economics*, 39(2):301-311.
- Kim, D., D. Cahn, C. Poulos, L. Thoa, J. Cook, N. Hoa, A. Nyamete, D. Thuy, J. Deen, N. Son, J. Clemens, D. Trach, V. Thiem, and D. Anh. *forthcoming*. "Private Demand for Cholera Vaccines in Hue, Vietnam." *Value in Health*.
- Cahn, D., D. Whittington, L. Thoa, N. Utomo, N. Hoa, C. Poulos, D. Thuy, D. Kim, A. Nyamete, and C. Acosta. 2006. "Household Demand for Typhoid Fever Vaccines in Hue, Vietnam: Implications for Immunization Programs." *Health Policy and Planning*. 21(3): 241-255.
- Poulos, C., R. Bahl, D. Whittington, M.K. Bahn, J. Clemens, and C. Acosta. 2004. "A Cost-Benefit Analysis of Typhoid Fever Immunization Programs in an Indian Urban Slum Community." *Journal of Health, Population, and Nutrition* 22(3):311-321.
- Bahl, R., A. Sinha, C. Poulos, D. Whittington, S. Sazawal, R. Kumar, D. Mahalanabis, C.J. Acosta, J. Clemens, and M. K. Bhan. 2004. "Costs-of-Illness of Typhoid Fever in Indian Urban Slum Community: Implications for Vaccination Policy." *Journal of Health, Population, and Nutrition* 22(3):304-310.
- Cropper, M., H. Mitiku, J. Lampietti, C. Poulos, and D. Whittington. 2004. "The Demand for a Malaria Vaccine: Evidence from Ethiopia." *Journal of Development Economics* 75:303-318.
- Smith, V.K., C. Poulos, and H. Kim. 2002. "Treating Open Space as an Urban Amenity." *Resource and Energy Economics* 24:107-129.
- Poulos, C. and D. Whittington. 2000. "Time Preferences for Life-Saving Programs: Evidence from Six Less Developed Countries." *Environmental Science and Technology* 34:1445-1455.
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Books, Book Chapters, Monographs

- Lauria, D., B. Maskery, C. Poulos, and D. Whittington. 2008. "An Optimisation Model for Use of the Vi Polysaccharide Vaccine to Prevent Typhoid in Developing Countries." Brooks World Poverty Institute Working Paper 18. University of Manchester, Manchester.
- Poulos, C., S. K. Pattanayak, and K. Jones. 2006. *A Guide to Water and Sanitation Sector Impact Evaluations*. Doing Impact Evaluation Series No. 4.
- Poulos, C., J. Lampietti, M. Cropper, D. Whittington, and H. Mitiku. 2006. "The Demand for Insecticide Treated Mosquito Nets: Evidence from Ethiopia." In *Handbook of Contingent Valuation*, A. Alberini and J. Kahn (eds.) n/a: Edward Elgar.
- Lampietti, J., M. Cropper, C. Poulos, H. Mitiku, and D. Whittington. 1999. "Gender and Preferences for Malaria Prevention in Tigray, Ethiopia." Policy Research Report on Gender and Development Working Paper Series, No. 3. World Bank: Washington, DC.
- Poulos, C. 2002. "RFF and Lave and Seskin's Air Pollution and Human Health: Rappateur's Notes on Sessions in Honor of Resources for the Future's 50th Anniversary." In *RFF at Fifty: Essays Reflecting on RFF's Impact in Environmental Economics*. forthcoming.
- Whittington, D., E. McClelland, G. Cassidy, D. Amaral, W. Hua, and C. Poulos. 1995. The Economic Value of Improving the Environmental Quality of Galveston Bay. In *Sustaining Coastal Resources: Economics and the Natural Sciences*. Charles Colgan, ed. Edmund S. Muskie Institute of Public Affairs, University of Southern Maine.

Other Papers

Papers in Review or Revision

- Pattanayak, Subhrendu K., Christine Poulos, Kelly M. Wendland, Sumeet R. Patil, Jui-Chen Yang, Richard K. Kwok, Catherine G. Corey. 2007. Informing the Water and Sanitation Sector Policy: Case Study of an Impact Evaluation Study of Water Supply, Sanitation and Hygiene Interventions in Rural Maharashtra, India. RTI International Working Paper 07_04. February.
- Pattanayak, Subhrendu K., Jonathan L. Blitstein, Jui-Chen Yang, Katherine L. Dickinson, Sumeet R. Patil, Christine Poulos, Kelly M. Wendland. 2007. Promoting Latrine Use and Improving Child Health: Design and Baseline Findings from a Randomized Evaluation of a Community Mobilization Campaign in Bhadrak, Orissa. RTI International Working Paper 07_05. February.
- Pattanayak, S.K., C. Poulos, J.C. Yang, K. Jones, and G. Van Houtven. 2007. Modeling Self-Protective Behaviors Against Infectious Disease: Estimates of "Prevalence Elasticity" for Malaria.
- Evans, M.E., C. Poulos, and V.K. Smith. 2006. Individual Preferences and Household Choices: The Potential Role of Dependency Relationships. Paper presented at the 2007 ASSA Conferences. January, 2007, Chicago, Illinois.
- Whittington, D., J. Cook, C. Poulos, J. Deen, A. Nyamete, and J. Clemens. Submitted. "Private Demand for Cholera and Typhoid Vaccines in Kolkata, India."
- Smith, V. Kerry, M. Evans, H.S. Banzhaf, and C. Poulos. 2006. "Weak Substitution, Environmental Vulnerability, and Choice."

Poulos, C. 2003. Testing the Validity of the Benefit Transfer Method: An Application to Malaria Prevention. Working Paper.

Poulos, C. 2002. Agricultural Households and The Nonmarket Valuation of Public Malaria Prevention Activities. Working Paper.

Poulos, C. and V. Kerry Smith. 2002. Transparency and Takings.

Presentations

Poulos, C. and S.K. Pattanayak. 2007. Guidelines for Impact Evaluations in the Water and Sanitation Sector. Presentation for The World Bank's Thematic Group on Poverty Impact Analysis, Monitoring and Evaluation and the Rural Water Supply and Sanitation Thematic Group. Washington, DC, June 11, 2007.

Beach, R.H., C. Poulos, and S.K. Pattanayak. "Agricultural Household Response to Avian Influenza Prevention and Control Policies." Annual Meetings of the Southern Agricultural Economics Association, Mobile, Alabama, February 3-6, 2007.

Beach, R.H., C. Poulos, and S.K. Pattanayak. "The Economics of Preventing and Controlling Avian Influenza." CAEA-FLP-CATPRN Joint Workshop 2006, Crises in Agricultural and Resource Sectors Workshop: Analysis of Policy Responses, Calgary, Canada, October 15-17, 2006.

Pattanayak, S.K., S.R. Patil, J. Yang, C. Poulos, C.G. Corey, K.M. Jones, S. Vinerkar, R.K. Kwok, and S. Isac. "Child Health, Rural Livelihoods and the Environment in Maharashtra: Role of Water, Sanitation and Hygiene." Presented at Maharashtra Government & World Bank Joint Workshop on Water, Sanitation, and Environmental Health, Mumbai, India, March 4, 2006.

Pattanayak, S.K., J. Yang, S.R. Patil, K.L. Dickinson, C. Poulos, K.M. Jones, C.G. Corey, R.K. Kwok, and S. Isac. "An Information, Education, and Communication Campaign to Promote Sanitation and Child Health in Bhadrak: Status Report and Baseline data." Presented at Government of Orissa & World Bank Joint Workshop on Water, Sanitation, and Environmental Health, Bhubaneswar, India, March 3, 2006.

Pattanayak, S.K., J. Yang, S.R. Patil, K. Lvovsky, C. Poulos, K.M. Jones, C.G. Corey, R.K. Kwok, N. Jha, S. Isac, and P. Kumar. "Child Health, Rural Livelihoods and the Environment in India: Role of Water, Sanitation and Hygiene." Presented at Indo-US Workshop on Environmental Health Issues and Water and Sanitation, Kolkata, India, February 22, 2006.

Guh, S., and C. Poulos. "Comparison of Cost-of-Illness to Willingness-to-Pay to Avoid an Episode of Shigellosis in a Rural Area of China." Presented at Twenty-Seventh Annual APPAM Research Conference: Understanding and Informing Policy Design, Washington, DC, November 3-5, 2005.

Kim, D., B. Dong, C. Poulos, D. Whittington, M. Serre, and A. Nyamete. "GIS-based Spatial Approach to Estimating Private Demand for Vaccination Programs: Evidence from Lingchuan County, China." Presented at Association of Collegiate Schools of Planning: Beyond the City Beautiful, Kansas City, Missouri, October 27-30, 2005.

Poulos, C. "Household Demand for Typhoid Fever Vaccines in North Jakarta, Indonesia." Presented at Investing in Health, International Health Economists Association 5th World Congress, Barcelona, Spain, July 10-13, 2005.

“Household Demand for Typhoid Fever Vaccines in Hue City, Vietnam: Implications for Immunization Programs.” 4th World Congress of the International Health Economics Association. June 15-18, 2003. San Francisco, California.

“Selection Bias in Estimates of the Value of Open Space,” Heartland Environmental and Resource Economics Workshop, Department of Agricultural Economics. September 23-24, 2002. Iowa State University, Ames, Iowa.

“Selection Bias in Estimates of the Value of Open Space,” Camp Resources, Center for Environmental and Resource Economic Research. August 8-10, 2002. Wilmington, North Carolina.

“Measuring the Disamenity Impacts of Interstate Highways.” Second World Congress of Environmental and Resource Economists. June 23-28, 2002. Monterey, California.

“Transparency and Takings: An Application of the Regression Discontinuity Method.” National Bureau of Economic Research Environmental Working Group. April 6, 2002. Boston, Massachusetts.

“Measuring the Economic Impacts of Infrastructure.” Eighth Annual Interamerican Environmental Congress. December 5-7, 2001. Talca, Chile.

“The Demand for Insecticide-Treated Mosquito Nets: Evidence from Africa.” Southern Economics Association Meetings. November 16-19, 2001. Tampa, Florida.

“A Preliminary Analysis of Economic Factors Affecting Childhood Asthma.” Add Health Users Workshop. August 2001. National Institutes of Health. Bethesda, Maryland.

Other Professional Service

Organized a session on intrahousehold allocation of vaccines for the International Health Association’s 5th World Congress, Barcelona, Spain, July 2005.

Selected Technical Reports

Poulos, C., S. Patil, J.C. Yang, S. Pattanayak, J. Blitstein, and A. Bubna. 2007. Monitoring and Evaluation of Health and Socio-Economic Impacts of Water and Sanitation Initiatives: Baseline Survey Report. Submitted to Acumen Fund. February.

Poulos, C., S. Patil, J.C. Yang, S. Pattanayak, J. Blitstein, and A. Bubna. 2006. Monitoring and Evaluation of Health and Socio-Economic Impacts of Water and Sanitation Initiatives: Research Protocol. Submitted to Acumen Fund. November.

Canfield, S.R., C.J. Elkins, J.D. Eyerma, C. Poulos, and S. Taddesse. 2006. “Guidelines for Strong Monitoring & Evaluation in the Field.” Research Triangle Park, NC: RTI International.

Pattanayak, S.K., K.M. Jones, C. Poulos, J. Yang, S.R. Patil, S. Isac, K. Dickinson, and C.G. Corey. “Design of an Information, Education and Communication Intervention to Promote Household Latrine Uptake and Child Health: Baseline Findings from a Community Randomized Trial in Bhadrak, Orissa.” Prepared for the World Bank, December 2005.

Poulos, C., X. Wu, and D. Whittington. "Willingness-to-Pay for Typhoid Fever Vaccines for Adults and Children in Guilin, China." Prepared for UNC-CH/IVI, November 2005.

Poulos, C. "Individual and Household Demand for Cholera Vaccines in North Jakarta, Indonesia." Prepared for UNC-CH/IVI, October 2005.

Mansfield, C.A., and C. Poulos. "Household Production Function." Prepared for the Environmental Protection Agency through E.H. Pechan and Associates, September 2005.

Poulos, C. "Household Demand for Typhoid Fever Vaccines in Karachi, Pakistan." Prepared for UNC-CH, August 2005.

Xingbao, C., S. Guh, Z. Qia, C. Poulos, C. Jianwen, L. von Seidlein, C. Jichao, X. Wang, X. Zhanchun, A. Nyamete, D. Whittington, and J. Clemens. "Comparison of Cost-of-Illness with Willingness-to-Pay Estimates." Prepared for UNC-CH/IVI, July 2005.

Pattanayak, S.K., S.R. Patil, J. Yang, C. Poulos, K.M. Jones, S. Vinerkar, S. Chatterjee, U. Dosajh, and S. Isac. "Environmental Health Impacts of Water Supply, Sanitation and Hygiene Interventions in Rural Maharashtra, India: Survey Report 1." Prepared for the World Bank, June 2005.

Poulos, C., S. Guh, D. Whittington, V. Prabhu, and N. Utomo. "Individual and Household Demand for Typhoid Fever Vaccines in North Jakarta, Indonesia." Prepared for UNC-CH/IVI, May 2005.

Pattanayak, S.K., J.-C. Yang, S. Patil, C. Poulos, K.M. Jones, E. Kleinau, C.G. Corey, and R. Kwok. "Environmental Health Impacts of Water Supply, Sanitation and Hygiene Interventions in Rural Maharashtra, India: Revised Study Protocol." Prepared for the World Bank, January 2005.

Pattanayak, S.K., J.-C. Yang, S. Patil, C. Poulos, K.M. Jones, E. Kleinau, C.G. Corey, and R. Kwok. "Environmental Health Impacts of Water Supply, Sanitation and Hygiene Interventions in Rural Orissa, India: Revised Study Protocol." Prepared for the World Bank, January 2005.
