

Lesotho Sustainability Assessment Project

About LSAP

The goal of this project is to develop integrated, cross-disciplinary approaches to sustainable development that can be implemented at the community level in developing countries. Research investigates the correlation between energy use, income level and health, and identifies barriers to improved energy efficiency, access to energy, and reliability of energy sources, as well as air and water quality. The team works in partnership with local communities in Lesotho to conduct research assessments (field surveys) and focus groups to identify trends in income, family structure, energy use, social capital, and health. Based on this information, we aim to develop strategies to design and implement cost-effective, sustainable solutions that improve energy efficiency and health.

Household Energy Access, Health and Poverty – The Energy Ladder¹

Development and household energy are inextricably linked; as a household grows in prosperity and development, studies show that these households increasingly use cleaner, more efficient and more convenient forms of fuel to meet their energy demands for heating, lighting and cooking. Households in lower income brackets typically rely on gathering or purchasing solid fuels like agricultural waste, dried dung, wood, charcoal and coal – where coal is the cleanest, most efficient burning in the solid fuels category. The adverse health effects of using these smoke-producing fuels are staggering. It is estimated by the WHO (2000 data) that 1.6 million people die each year from indoor air pollution, most of them women and children. Households in higher income brackets tend to have access to non-solid fuels for meeting their energy needs, such as kerosene, ethanol/methanol, gas (propane) and liquefied petroleum gas, natural gas, and electricity – where electricity is the most convenient, cleanest fuel in terms of indoor air quality.

History on LSAP

The Lesotho collaboration began in June 2008 in three peri-urban communities around Maseru, Lesotho (Masianokeng, Ha Motloheloa, and Ha Bosofo). During this 4-week project, researchers conducted a background community needs assessments to identify local concerns and interest in collaborating on sustainable development research and projects. The team and local inhabitants implemented a few immediate solutions to small-scale problems identified on the ground (such as keyhole gardens and fuel efficient mud-and-brick stoves). However, the target goal of the summer 2008 assessment project was to identify the community's large-scale concerns, needs, and obstacles to implementing sustainable, cost-effective solutions in order to promote energy (fuel) efficiency and improve health.

LSAP continues into its second year (June/July 2009) to conduct more detailed analyses through structured, scientific surveys to identify how fuel choices impact the correlation between energy use, income level and health and household productivity, and how fuel

¹ “Fuel for Life: Household Energy and Health.” *Section I. Household Energy, Indoor Air Pollution and Health.*

choices relate to income. The program will then use this analysis and data to implement, test, and evaluate the impact of small-scale energy (fuel) and health solutions. After these assessments, researchers will analyze existing and proposed energy and health policies to determine their appropriateness and successfulness.

Background on the Team

The Lesotho Sustainability Assessment Project is coordinated by two independent organizations at Rice University; these are Rice 360°: Institute for Global Health Technologies and the Energy Forum of the James A. Baker III Institute for Public Policy. Annually, during the months of June and July, the project sends a multidisciplinary group of Rice University faculty, staff and undergraduate students to Maseru, Lesotho.

About Rice 360°: Institute for Global Health Technologies

Announced in 2007 at the annual meeting of the Clinton Global Initiative, Rice 360° works in partnership with communities around the world to design and implement novel, affordable technologies that prevent disease, improve health, and reduce poverty. Integrating expertise in bioengineering, nanoscience, policy, management, and education, Rice 360° brings together highly focused technical solutions; new, sustainable systems of dissemination; and the creativity of students and faculty, to improve health around the world. It unites efforts from Rice's Jesse H. Jones Graduate School of Management, the James A. Baker III Institute for Public Policy, and the health institutions of the Texas Medical Center. Through Rice 360°'s education initiative, *Beyond Traditional Borders*, undergraduates design solutions to challenges healthcare providers face in the field in Africa, Latin America, and Haiti. More than 11,000 people around the world have benefitted from technologies and educational programs developed by Rice 360° students and faculty.

About the Energy Forum

Since its founding in 1993, the James A. Baker III Institute for Public Policy at Rice University has become a leading institution advancing effective, nonpartisan foreign and domestic policy. Located in Houston, Texas, the energy capital of the world, one of the institute's hallmarks since its early years has been its independent research program on energy issues. In 1996, the Baker Institute established the Energy Forum, a multifaceted policy program that promotes original, forward-looking discussion and research on the energy-related challenges facing our society in the 21st century. Our choice of the word "forum" is deliberate. It reflects our goal to serve as a focal point for the exchange of ideas on how to improve understanding of the complex political, cultural, religious, economic and social forces that influence open access to energy resources and their equitable distribution. The mission of the Energy Forum is to promote the development of informed and realistic public policy choices in the energy area by educating policymakers and the public about important trends — both regional and global — that shape the nature of global energy markets and influence the quantity and security of vital supplies needed to fuel world economic growth and prosperity and to reduce poverty worldwide.