

2010 Progressive Sustainability Application: Energy and Development Capstone Workshop

Applicants: Audrey Desiderato (acd2143@columbia.edu), Gbenga Olowoyeye (gao2109@columbia.edu), and Professor Ellen Morris (em2507@columbia.edu)*

Project Description: By exploring 3 projects that aim to increase access to energy for rural populations in Ghana, this workshop seeks to achieve a balanced understanding of the role of energy in development, environment and business activities in developing countries. The workshop is designed to provide students and their clients (E+Co, Grameen Ghana, the IFC's Lighting Africa Project) with the tools, methodologies, and exposure to better understand, critique, and influence the development of investment models, implementation plans and policy options regarding the expansion of modern energy in light of social of environmental considerations. The workshop is built on the understanding that a third of the world's population lack access to energy services; that there are deep concerns about a sustainable and secure supply of energy; and that populations with the lowest access to modern energy stand to suffer the most from climate alterations and greater competition for scarce energy supplies.

Environmental Root Issue: In Ghana, fuelwood and charcoal represent the main source of energy for over 75% of its population. Fuelwood is used for domestic cooking and heating and in small-scale industries (local breweries and fish processing). Forest biomass removal for fuelwood is not only a cause of deforestation, but also a consequence of socio-economic structures of the Ghanaian society. Thus, addressing deforestation-- a complex, dynamic and interlinked process—requires a close look into the energy sector, particularly, the challenges associated with expanding energy access and transitioning into renewable energy technology, particularly solar, that can reduce pressures on the environment

Final Product: 3 business models that aim to provide innovative financing solutions for rural renewable energy access will be investigated by three workshop teams of four students per team:

1. Basic Energy for the Base of the Pyramid (BEBOP): Exploring a multi-leveled franchising business model which will provide basic sustainable energy packages – cooking, solar PV, and IED – to customers.
2. Grameen Ghana: Work will center on building the foundation for the establishment of an energy lending portfolio at a microfinance institution in rural Ghana that serves the extreme poor. Students will develop a strategy and preliminary design of an energy lending portfolio with recommendations for how Grameen Ghana can undertake a pilot program.
3. Lighting Africa: The achievement of rapid scale deployment and wide coverage for LED lighting using new distribution channels. A business model will be developed that aims to expand access to affordable lighting products.

Project budget:

Item	Cost per Day	Cost per Person (uSD)	Number of Persons	Total Cost (USD)
International flight JFK-Accra-JFK		1,300	14	18,200
Domestic Flight Accra-Tamale-Accra		150	5	750
Transportation to JFK Airport (TO and FRO)		100	4	400
8 days DSA		720	14	10,080
Local Transportation - 8 days*	120	960	4	3,840
GRAND TOTAL				33,270

* Transportation cost is lumped together in group of 3 (1 person = 1 group)

We have secured SIPA workshop funds through the CEMTPP in the amount of \$16,635 (half of expenses). The group will be fundraising the remaining \$16,635. We would like to put the \$1,000 APS fund towards this amount.

How the workshop project best upholds the ideals behind the APS:

(1) The workshop project identifies a social problem: A lack of energy access for the rural poor in developing countries that has adverse impacts on health, education and deforestation. (2) It highlights its environmental roots by seeking solutions for addressing energy needs that are compatible with environmental sustainability. (3) It proposes an actionable, cross- disciplinary solution by delivering 3 innovative business models that focuses on end-user needs (takes into account socio-economic realities) that are technically, financially and politically feasible. Moreover, it recognizes that the environment is not an externality, by promoting the use of the earth's natural resources in a sustainable manner as the key component of addressing basic energy needs for the rural poor.

* Application for funding includes all 14 students