ENERGY SOLUTIONS

The UNDP Uganda Accelerator Lab has undertaken a portfolio of experiments on the challenge of deforestation, born from several explorative methodologies used to identify key priorities for intervention. This portfolio includes an energy audit of large institutions, innovative financing to stimulate supply and demand of renewable cooking technologies, exploring behavioral change to adopt renewable cooking technologies, and design of the Uganda Natural Resource Information System (NARIS) to monitor and map forest cover. The Accelerator Lab has formed an active and collaborative effort involving Government, private sector, academic institutions, development partners and civil society actors – including traditional institutions and local communities – to identify transformative energy solutions.

According to the World Bank, national electrification coverage in Uganda was around 19% in 2016 and is currently estimated at around 28% in 2022, while Uganda's rural electrification coverage is much lower at 8%. According to the Uganda Bureau of Statistics, Uganda has one of the lowest electricity consumption rates per capita in the world, estimated at an average of 80 kWh per year in 2017, compared with 155 kWh per year in Kenya and 300 kWh per year in Ghana. Meanwhile, Uganda's energy sector is dominated by biomass (organic matter used as fuel), with 87% of households using either firewood or charcoal for cooking.

Renewable energy solutions are key to sustainable development, and energy is one of the core sectors identified to transform Uganda's economy within the Government's National Development Plan (NDP III), with a focus on: 1) Transitioning from biomass to clean energy sources; 2) Expanding the transmission network, upgrading and expanding the distribution network; 3) Planning for generation of more hydroelectric power; 5) Developing and implementing a plan for integrating alternative energy sources; and 6) Strengthening intra and inter-sectoral and institutional coordination.

19%
ELECTRICITY COVERAGE
2016

28%
ELECTRICITY COVERAGE
2022

87%
HOUSEHOLDS COOK WITH WOOD/CHARCOAL

ENERGY AUDIT

Having identified a lack of affordable and effective renewable cooking energy as a primary driver of deforestation in Uganda, the Accelerator Lab conducted an Energy Audit to identify energy solutions that could help reduce nationwide consumption of biomass and in turn protect Uganda's forests and biodiversity. This exercise analyzed the renewable energy landscape in Uganda, rates of biomass consumption by both institutions and households, and performed a cost benefit analysis of renewable energy solutions.

Findings from the Energy Audit indicate that improved cooking technologies prove more energy efficient and offer alternative sources of energy when compared with traditional cooking technologies. Though, attitudes toward the adoption of improved cooking technologies were mixed, with many users placing importance on the use of traditional technologies, distrusting the effectiveness of improved technologies, and feeling that improved technologies are simply not affordable.

This exercise established that accessibility alone does not necessarily lead to the adoption of improved cooking technologies and renewable energy sources. Rather, social and economic factors play a significant role in influencing public beliefs and practices.

TRANSITIONING FROM BIOMASS TO ELECTRICITY

Through partnership with Uganda's National Electricity Regulatory Authority (ERA), the UNDP Uganda Accelerator Lab has launched the From Biomass to Electricity Project, an initiative that is incentivizing large institutions throughout the country to use electricity as an alternative energy source to biomass. This project has been piloted at Mulago National Referral Hospital within the Mwanamugimu Nutrition Unit, where the kitchens have been fully converted to electricity.

Previously, kitchen staff – who prepare meals for mothers and newborn babies – had exclusively used wood as cooking fuel. Not only does this practice place a considerable burden on Uganda's forests, but excessive smoke from burning wood creates health issues for staff, while the inconsistency of cooking with wood fuel creates delays in preparation and delivery of meals for patients.

Historically, an expensive national electricity tariff rate has also made cooking with electricity an expensive proposition for households and institutions across Uganda. The From Biomass to Electricity Project has already led to policy change in Uganda, lowering the national electricity tariff rate from 556 Uganda Shillings (UGX) per kilowatt hour (kWh) to 451 UGX per kWh for eligible institutions.

According to the Ministry of Water and Environment, Uganda's forest cover has reduced from 24% in 1990 to just 12% in 2017, and if deforestation continues at the present rate Uganda risks losing its forests by the year 2033. Successfully transitioning large institutions and households throughout Uganda from cooking with biomass to electricity is likely to play a key role in easing the burden of deforestation, in turn reducing the risk of biodiversity loss and exacerbation of climate change impacts.

Contact: Innocent Fred Ejolu, Focal Point, UNDP Uganda Accelerator Lab | innocent.ejolu@undp.org, registry.ug@undp.org

United Nations Development Programme (UNDP)
Plot 11, Yusuf Lule Road, Nakasero
P. O. Box 7184, Kampala, Uganda.
: +256417112100/30
: +256 414 344801
: registry.ug@undp.org
: www.ug.undp.org
: www.acceleratorlabs.undp.org
: @UNDPUganda
: UNDP Uganda
: @UNDPUganda
: UNDPinUganda