

UGANDA

Key issue addressed:

Energy Efficiency and Demand-Side Management

Descriptive Title of Case Study:

UGANDA'S INITIATIVE IN PROMOTING ENERGY EFFICIENCY

Lead Institution:

Ministry of Energy and Mineral Development (MEMD)

Other implementation arrangements and stakeholders involved:

The Energy Advisory Project (EAP), which is funded by the German Development Cooperation (GTZ), supports activities under this initiative.

Stakeholders involved: Uganda Manufacturers Association (UMA), private auditors, local dealers in EE products

Brief summary:

Energy Efficiency is an initiative aimed at ensuring economical utilisation of energy in all sectors of the economy, including industry, commercial buildings, institutions, households, transport and agriculture. Efficient use of energy is the cheapest and quickest way to alleviate the foreign exchange burden of energy imports, reduce the capital constraints of building new power stations and extend domestic energy supplies. Up to now, activities on energy conservation have been limited to preliminary energy audits done by the Ministry of Energy and Mineral Development in industries and commercial buildings (hotels) as well as efforts to increase awareness among all stakeholders.

Key objectives:

The main objectives of this initiative are,

- Setting efficiency standards for the utilisation of various types of energy sources and for various modes of utilisation;
- Monitoring directly or through agents, the efficient utilisation of energy in all spheres of activity;
- Providing advice and technical guidance to energy users with the aim of improving the efficiency of utilisation; including advice on substitution of energy sources for better efficiency; and
- Providing advice and technical guidance to energy users on the minimisation of environmental pollution arising from energy use

Key challenges:

General challenges

- There is a lack of incentives, including financing mechanisms to invest in modern, efficient technologies and practices.
- There is a lack of specialised and skilled manpower in energy management
- "Energy" is low on people's priority list; to encourage them to make good decisions; they have to have access to good information.

Industrial sector

- There is dominance of old energy-inefficient technologies and lack of replacement parts
- Lack of proper instrumentation in a number of industrial plants
- Poor housekeeping by most industries
- Lack of awareness, skilled manpower and appropriate financing mechanisms in the area of energy management

Transport sector

- Dominance of old fleet of vehicles that are energy inefficient, resulting in increased pollution
- Poor maintenance culture
- Inadequate mass transit system, resulting in increased traffic congestion during peak hours and energy consumption per passenger
- Bad road infrastructure coupled with low road maintenance

Agriculture sector

- Over dependence on human and animal energy
- Lack of data on energy consumption in agriculture
- Lack of incentives to introduce mechanised farming to smallholder agricultural producers

Households and Institutions

- Low efficiency of technologies in use, including wood fuel stoves, lights and other appliances
- Insufficient incentives to introduce fuel/technology substitution, e.g. electricity for kerosene and wood fuel, LPG for wood fuel, solar water heaters for electric water heaters and wood fuel, fluorescent lamps for incandescent lamps etc.
- Lack of information about improved energy technologies and efficient practices

Key features of the initiative:

Through policy formulation and coordination, the government interfaces with key stakeholders in promoting “Energy Efficiency”. Energy efficiency measures are introduced taking into account the acknowledged potential for improvements that can result in both financial and environmental benefits for the country, thus making Ugandan industry more internationally competitive

Time frame: Year started: 1999

Status: Still Ongoing

Results achieved and known impacts:

- The Ministry of Energy and Mineral development has conducted several seminars on energy conservation and tariff impacts. The seminars were conducted for household and small-scale industrialists in several parts of the country. As a result of the seminars consumers are steadily adapting to the use of efficient appliances and are increasingly rationally utilising electricity.
- Households have been sensitised on energy saving measures in a campaign promoting especially the Compact Fluorescent Lamps (CFLs). The compact

fluorescent lamps are now gradually replacing the energy consuming incandescent bulbs

- A number of Energy Audits have been successfully carried out in over 30 industries and energy saving measures proposed. Follow up in these industries to monitor the implementation progress is an ongoing process.
- A project Sustainable Energy Use in Households and Industry (SEUHI) that started in 1999 was concluded. The project was designed to address issues of poor production and utilisation of biomass energy in Uganda's households, industry and institutions. In collaboration with the Uganda Industrial Research Institute (UIRI) and Makerere University, the stoves disseminated under the project and other models were later tested. Low cost improvements were made.
- An improved firewood-baking oven was designed and constructed at UIRI. A model of the oven was constructed at Omega Bakery and Training Centre at Kyebando, Gayaza road. A performance test was done under actual production conditions. It was established that the oven uses 10% of the wood fuel used by the traditional oven to produce the same products.
- The Ministry in conjunction with the Uganda Cleaner Production Centre supported by UNIDO carried out training on Energy Management under an Eco-Benefits Programme. The programme assisted companies to lower their energy costs through cleaner production. Later a Cleaner Production ~ Energy Efficiency Programme was developed in which how to identify neglected energy waste areas that lead to "hidden" expenses was further emphasised.
- Training workshops have also been held where participants were sensitised on the renewable energy potential in improving energy access to the population in Uganda. Participants from various districts were trained in the design, construction and use of improved wood stoves.
- An Energy Efficiency Directory was developed, published and circulated among potential users of energy. The directory contains details of firms that are involved in the sale of energy efficient products on the Ugandan Market
- An Energy Efficiency Guide for Institutions was prepared and published. It provides information regarding efficient use of energy in establishments like hotels and commercial buildings.
- The Ministry participated in the Annual Uganda Manufacturers Association (UMA) trade show. A number of renewable energy products were exhibited ranging from solar energy to biomass energy.
- Sector specific energy efficiency programs were embarked on as a more strategic approach to promoting energy efficiency in industries and commercial buildings. The following programs were initiated:
 - Energy Efficiency Program for Tea Factories
 - Energy Efficiency Program for Small and Medium Scale Industries

- An Energy Efficiency Week was held in May, 2005 in Kampala in which the public was sensitised on efficient use of energy and the private sector dealing in modern affordable and reliable energy services and products was promoted. This Week is expected to become an annual national event.

Main obstacles faced:

- Lack of awareness on energy conservation benefits among the directives of industries and people in general;
- Absence of incentives to attract investment in energy efficiency, and
- Poor financing schemes to support initial investment in this area.

Sustainability, scalability and transferability:

- 1) The government institutions are expected to:
 - Expand outreach and energy efficiency awareness activities
 - Enact regulatory reforms and facilitate initiatives that create a competitive marketplace
 - Establish policies to encourage cost-effective on-site energy production
 - Develop economic incentives to accelerate deployment of clean energy technologies
 - Incorporate supply and demand-side resources into energy planning activities
 - Set minimum efficiency standards to govern equipment use and new construction
 - Incorporate procurement policies for energy efficient and clean technologies in public buildings
 - Build institutional capacity for energy efficiency practices
 - Facilitate information exchange protocols among strategy stakeholders
- 2) Government will support the private sector stimulate the local market for energy services through a range of supply and demand-side efforts, including:
 - Supply energy efficiency services using innovative business approaches
 - Provide a range of financing options for energy service projects
 - Adopt voluntary guidelines that encourage the use of energy efficient equipment
 - Participate in trade associations that advocate energy efficiency business interests
 - Establish partnerships with the public sector
- 3) NGOs can help promote sustainable energy and social development through a range of non-profit programs, including:
 - Demonstrate innovative models for sustainable energy use through cooperative programs with energy end-users
 - Organize advocacy programs that provide policy-makers with information on key energy efficiency issues
 - Facilitate energy efficiency education and awareness programs and act as a liaison between government and private entities
 - Enhance the capacity of local organizations through mutual exchanges of energy efficiency information and expertise
 - Participate in policy development

Key lessons learned:

- Energy users are able to embrace energy efficiency measures once the financial benefits are properly explained.
- Top management support is crucial in introducing energy management strategies in large organisations.

Further Information:

Ministry of Energy and Mineral Development <http://www.energyandminerals.go.ug>

Uganda Cleaner Production Centre <http://www.ucpc.co.ug>