# Developing Tools for Sustainable and Energy Efficient Campus Development

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### Aim:

To institutionalise Energy Efficiency policies, practices and activities within the partner Universities.

## Setup (Structure and Staff):

Utilisation of existing structures (Estates Depts, Campus technical depts., facilities/infrastructure mgt depts., Engineering Depts.).

Backstopping by academic staff with EE knowledge and planning and development staff members.





## **Equipment & Space:**

Each partner University provided furnished office space and computers. The equipment supplied by the SUCCEED project like energy auditing tools, manuals, books and promotional materials are managed and utilised by the Unit in carrying out its activities.





Activities:

- •Conduct Energy Audits within the University infrastructure and services
- •Conduct EE Awareness within the University Community including round Tables
- •Surveillance of the campus
- •Develop guidelines for energy efficiency
- Identify EE project proposals for funding and implementation





Services:

- •Advisory Services on EE aspects
- •Hands-on Training of University staff and Electrical Engineering Students on Energy Audits
- •Dissemination of Good Practices on EE issues at University level and other Educational Institutions
- •Liaison with Internal and External EE practitioners (Energy Ministries, Energy players, partner Universities)





#### Target clientele:

- •University Community (students, management, academic and non- academic staff)
- •Technical staff (Estates, infrastructure mgt, Planning & Development and Investment Departments)
- •Outreach to local, regional and international university clients





#### **ENERGY AUDITS – Equipment Received**









## **ENERGY AUDITS DONE (16 BUILDINGS)**

- Africa Hall
- Livingstone Hall
- Lumumba Hall
- Mitchell Hall
- Nkrumah Hall
- Nsibirwa Hall
- Daghammerskjold Postgraguate Hall



- CoCIS
- FST
- Main Building
- Main Library
- Senate Building, and
- University Hospital
- Complex Hall





## **ENERGY AUDITS - General Observations**

- Some lights are on in most rooms even when natural light is harvested/rooms are not in use.
- Most appliances were left switched on even after use like slide warmers, hoofers and TVs
- Old technology and poor usage; T12 80W fluorescent tubes, lights are only controlled by switches
- Security lights left on during the day





## **ENERGY AUDITS - General Observations**

- Some air conditioned rooms are not air tight (operated when windows and doors are open)
- There is no staff-customer sensitization on energy consumption, management or usage at all the units audited
- No energy management awareness messages exist, anywhere, to guide on power saving
- Inadequate lighting in some rooms





- There is need to have a procedure for buying and installing lights in rooms, corridors and security lights (Technical guidance).
- In order to minimise the lighting loads natural daylight must be utilised by opening windows.
- Provide and install lighting controls (motion sensors and/or occupancy sensors) as additional control.
- Network Machines to allow sharing. This will ensure withdrawal of 50% of the printers





- Technology migration: Migrating from single purpose printer technology to Multi-Functional printers (MFP)
- Apply blinds, shutters and insulation to the operation room to prevent leakage of unnecessary heat into the air-conditioned rooms
- Installation of an air conditioning energy saver (ACES) system





- Programme computers to sleep, hibernate or autoturn off after for example 10 minutes of inactivity
- Technology migration: Migrating from this technology to an all in One (AiO), computer can give great savings.
- Roll-out the central power back-up system to support all key appliances and withdraw all UPS's from all offices
- Centralize office operations





- Install real-time energy monitoring system to monitor energy consumption for the entire building
- Develop and provide written awareness information tips on office energy management to educate staff and to ensure improvement on energy efficiency
- Selection of Energy Efficiency Champions
- Automated control of street lights





# **ROUNDTABLE PROCEEDINGS (UNIVERSITY HOSPITAL)**



#### **ROUNDTABLE PROCEEDINGS AT AFRICA** HALL







## **ROUNDTABLE PROCEEDINGS AT CEDAT**







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## **EE AWARENESS CAMPAIGNS** - Stickers



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## **EE AWARENESS CAMPAIGNS** - Stickers



- Electrical appliances continue to draw power when not Switched off completely.
- A television left on stand by can use up to 10% more power.
- Switching off your dvd player can save up to 50% Of the enenrgy it consumes.
- Switching off your music System at the set or unplugging it can save up to 50% on energy consumed.
- Always unplug phone chargers when not in use and avoid charging a phone longer than Necessary

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#### **ILLUSTRATED BENEFITS**

#### **Makerere University Payments to UMEME-2016**



#### Months of the year

## WAY FORWARD

- Development of an Energy Management Policy
- Good practices implementation in new buildings (under construction)
- Institutionalization of the EE Unit activities and inclusion into annual workplans





# Thank you! Open Discussion





