GOOD PRACTICES IN SUSTAINABLE UNIVERSITY CAMPUSES

Report #1 – October 2015

SUCCEED Network
'East African Higher Education Network on Sustainable and Energy Efficient Campus Development'
(FED/2013/320-274)

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FOREWORD

Energy is currently one of the hottest topics that need to be tackled in the East African Region, which is facing serious energy deficits and high-energy costs. The deficit in electricity supply and the lack of access to sustainable energy services hampers the satisfaction of basic human needs. The EU-EA Regional Strategy Paper revealed that 70% of the total inhabitants do not have access to sustainable energy sources. This leaves the region on a high dependence on fossil fuels, energy insecurity and high-carbon emission systems, which together with climate change provoke a very complex situation for the region.

The East Africa Region experiences unsustainable energy practices, which prevents its countries from reaching acceptable standards of socio-economic development. Most recently, the EC Country Strategy Papers stated as common problems in these countries:

- Lack of regional and national policies on Energy Efficiency and Renewable Energy that match the decision maker's decisions with society's actual needs.
- Poor infrastructures to produce, store and distribute energy in a more sustainable way.
- Lack of professionals trained in Energy Efficiency and Renewable Energy.

Due to the innovative nature of this field, universities, as providers of research and education, can play a crucial role in overcoming these problems.

Launched in October 2013, the three-year project SUCCEED Network is an ACP-Edulink funded project (contract number FED/2013/320-274) which aims to promote East African university campuses as "living laboratories" for sustainability and energy efficiency, in particular by establishing a sustainable campus development platform to foster collaborative learning and action for energy access and efficiency, with the idea of contributing to solve the problems described above. The project will do this via a set of activities whose objective will be to improve institutional, academic and cooperation building which should result in a stronger institutional background, an enriched academic offer in renewable energy and energy efficiency, and an increased attractiveness for relevant stakeholders in order to establish new cooperation schemes in the field of energy.

INTRODUCTION

Key to Energy Efficiency are the good practices that relate to activities and programmes that reduce the amounts of energy used by specific end-use devices and systems, without affecting the level of services provided. Improvements in the practices and equipment that reduce on the energy needed to provide services like lighting, cooling, heating, manufacturing, cooking, and transport that result in doing more with less energy, and therefore saving money and energy to enable HEIs concentrate on their core mandate of teaching and research within the East African Region has been promoted by the SUCCEED programme.

Presently, in most regions in Africa, including the East African Region, due to an increase in economic activity in the countries, the electricity demand is currently much higher than that supplied, especially during peak hours. To meet the increased demand, additional generation has been done from a number of sources and using quick fix investment models that has resulted in increased tariffs a scenario that requires the high energy users like industries and Universities to prioritise and popularise good practices in Energy Efficiency.

Under the SUCCEED Program Higher Education Institutions (HEIs) in the East African region (as well as one European university) were invited to collect and share good practices in Energy Efficiency in their universities. This was done with the aim of disseminating the Good Practices identified in the field of sustainable university campuses through peer benchmarking.

This publication presents the first collection of 10 Good Practices gathered by the SUCCEED partner HEIs. It is hoped that other East African HEIs will find these Good Practices useful, and will be encouraged to share their own Good Practices in the field in future publications.

If your institution wishes to contribute Good Practices to the next publication, please contact the project coordinator at project.management@ua.es in order to receive instructions.

GOOD PRACTICES

The participating HEIs have identified Good Practices in the field of Energy Efficiency in their Institution according to the categories described in the table below.

GOOD PRACTICES IN ENERGY EFFICIENCY IN HEIs	
CATEGORY OF ENERGY USE	*The template captures the good practices as applied in the various categories of energy use. It highlights the key areas of energy use in the HEIs where possible energy efficient practices can be adopted by institutions across the region*
Lighting	*Lecture, Conference and Library rooms*
	Student and Staff Residential Accommodation
	Street lighting
	General Building Lighting
Cooking	*Kitchens*
	Water Heating
Refrigeration	*Cold rooms*
	Laboratories
	Domestic Fridges
Appliances & Equipment	*Computer labs, Computers, projectors*
	Air conditioning
	TVs and other entertainment gadgets
	Mobile phones, TABs, etc
	Prohibited high energy consuming gadgets
Architectural	*Remodeling of existing buildings*
	Green policy on new buildings
Others	

MAKERERE UNIVERSITY

HEI	**Makerere University**
Location	Kampala, Uganda
Institution	Higher Education Institution
GOOD PRACTICE #1	***Bulk Purchase of Power from Energy Distribution Company UMEME***
Category of Energy use	Energy procurement/ utilisation
Description	Before this initiative Makerere University used to procure electricity as domestic consumers. The switch to bulk procurement meant energy consumption at industrial rates, which are considerably lower than the domestic rates. The electricity distribution company supplies electricity at one distribution point. The University then distributes the electricity internally to university facilities. This switch reduced the cost of power by close to 40% of pre- bulk procurement rates. It also improved the monitoring rate of electricity consumption.
Relevant Stakeholder Support	Makerere University-and Utility Company UMEME
INTERNET	www.mak.ac.ug
CONTACT PERSON	NAME: Mr. Fred Nuwagaba POSITION: Director Estates and Works E-MAIL: director@ewd.mak.ac.ug / frednuwa@yahoo.com

GOOD PRACTICE #2	Pre-paid Electricity Metering for Housed Staff and Other University Tenants
Category of Energy use	Domestic and Commercial use of Electricity within the Campus
Description	Makerere University Main Campus receives bulk Electricity supply from the Utility company UMEME. All university tenants including accommodated staff and private service businesses used to be charged flat values based on rule of thumb estimates of energy consumption. As a result until 2013 there was a lot of energy wastage under this category of consumers. While energy bills were sent to staff most of them were always reluctant to pay and therefore the revenue collection efficiency aimed at cost recovery was very low. Starting with 2013, the University Estates and Works Department introduced prepay metering to all staff and other tenants at the campus. The immediate impact has been overall reduction in the bulk university bill by over 15% as a result of reduction of wastage. There is 100% revenue collection efficiency considering that power is prepaid and recovery of the cost of consumption is fully met thereby enabling the university to utilise the collected funds 12% of her monthly utility bill from the Utility Supplier.
Relevant Stakeholder Support	Makerere University, Private Contractor Supplying Meters and Utility Company UMEME
INTERNET	www.mak.ac.ug
CONTACT PERSON	NAME: Mr. Fred Nuwagaba POSITION: Director Estates and Works E-MAIL: director@ewd.mak.ac.ug / frednuwa@yahoo.com

GOOD PRACTICE #3	**Public Private Partnership (PPP) for campus Street Lighting at Makerere**
Category of Energy use	Street lighting
Description	7-10% of the Electricity Energy consumed at Makerere Main Campus caters for street lighting. The university entered into a PPP with a private investor who will install solar powered streetlights with an advertising light box. The private investor will meet the full cost of installation and maintenance of lights and will recoup his investment from advertising on light boxes. Currently sample lights have been installed and there is promising interest from advertisers. The infrastructure has a life span of 20 years will be the property of Makerere University after a period of ten years.
Relevant Stakeholder Support	*Makerere University, Sharp Electronics (local partner) and Sol (Light manufacturer)*
INTERNET	www.mak.ac.ug
CONTACT PERSON	NAME: Fred Nuwagaba POSITION: Director Estates and Works E-MAIL: director@ewd.mak.ac.ug / frednuwa@yahoo.com

MOI UNIVERSITY

HEI	**Moi University**
Location	Eldoret, Kenya
Institution	Higher Education Institution
GOOD PRACTICE #1	**Individual lighting controls in rooms in office buildings and hostels**
Category of Energy use	Energy utilisation
Description	In Moi University, Energy utilisation practice / policy requires every user (staff and students) to turn off lights and any appliances anytime he/she leaves a room. Previously this was not the practice and lights in lecture theatres/rooms, hostels and offices and other installations were left on even after office hours or during the day and holidays in the hostels. Streetlights were at times also left on in hostels. Security personnel and building caretakers are also expected to switch off any lights not in use including security/street lights when not necessary. Students have also been cooking in hostels leading to high energy costs to the university. Further cooking in hostels has been strictly forbidden and made a punishable offence that leads to expulsion from the hostels. Repair of solar panels for water heating is also in progress. This practice has reduced unnecessary consumption of energy that has translated into lower electricity bill.
Relevant Stakeholder Support	Moi University Staff and students
INTERNET	www.mu.ac.ke
CONTACT PERSON	NAME: Mr Simon Maina POSITION: University Architect E-MAIL:

GOOD PRACTICE #2	**Pre-paid digital Electricity Metering for Staff Houses**
Category of Energy use	Domestic use of Electricity in Staff Houses
Description	Moi University owns houses for staff and students. Each house has a separate electric meter and each tenant is supposed to pay his / her electricity bill. However, being a residential academic institution many staff live with other dependants in the allocated houses. A number of such staff retire or get other jobs leaving behind unpaid electricity bills with the university forced to settle the bills so that a new occupant or set of students, especially international students, could be accommodated. Pre-paid meters have been introduced in houses and surrounding areas of the university where users buy power tokens for use. The problem of power wastage has been addressed significantly as users are now more sensitized on the need for power conservation. As a result the university has saved some money that was once used to settle the unpaid electricity bills left behind by some house tenants.
Relevant Stakeholder Support	Moi University, Tenants, students, university community and the Utility Company Kenya Power and Lighting Company (KPLC)
INTERNET	www.mu.ac.ke
CONTACT PERSON	NAME: Mr Simon Maina POSITION: University Architect E-MAIL:

MZUMBE UNIVERSITY

HEI	**Mzumbe University**
Location	Morogoro, Tanzania
Institution	Higher Education Institution
GOOD PRACTICE #1	**Minimising Energy Waste**
Category of Energy use	Energy utilisation
Description	Whereas the Mzumbe University Environment Management Policy requires each staff and student to turn off light and air condition / fan anytime he/she leaves a room, many of these stakeholders have not been implementing the directive. As a result a number of offices have lights and air condition / fan on even after office hours. Security personnel have been required to be vigilant and turn off such appliances and record a number of the office which has left the lights / air condition / fan on. This practice has reduced unnecessary consumption of energy that has translated into somewhat lower electricity bills.
Relevant Stakeholder Support	Mzumbe University Staff and students
INTERNET	www.mzumbe.ac.tz
CONTACT PERSON	NAME: Prosper Leo POSITION: Ag. Director Buildings and Estates E-MAIL: lprosper@mzumbe.ac.tz

GOOD PRACTICE #2	Pre-paid Electricity Metering for Staff Houses
Category of Energy use	Domestic use of Electricity in Staff Houses
Description	Mzumbe University owns more than 200 houses for staff. Each house has a separate electric meter and each tenant is supposed to pay his / her electricity bill. However, being an academic institution many staff obtain opportunities to go for further studies and thus leave the allocated houses for other staff to occupy. Or some staff retire and some change jobs or shift to their own houses. A number of such cases used to leave behind unpaid electricity bills and the university would be forced to settle the bills so that a new occupant could be accommodated. With the introduction of pre-paid meters, commonly known in Tanzania as Luku, this problem has been solved for ever. As a result the university has saved some money that was previously used to settle the unpaid electricity bills left behind by some staff house tenants.
Relevant Stakeholder Support	Mzumbe University, Tenants and the Utility Company TANESCO
INTERNET	www.mzumbe.ac.tz
CONTACT PERSON	NAME: Prosper Leo POSITION: Ag.Director Buildings and Estates E-MAIL: lprosper@mzumbe.ac.tz

GOOD PRACTICE #3	Public Private Partnership (PPP) for campus Street Lighting at Mzumbe
Category of Energy use	Street lighting
Description	A considerable percentage of electricity bill is due to lighting the streets which is essential for security reasons. The university is finalising an agreement with a private company to install solar powered streetlights with an advertising light box. The partnership will enable the university to save some money as well reduce the headache of replacing tube lights that at times are stolen by thieves.
Relevant Stakeholder Support	Mzumbe University, Mugisha Promotion Company and light manufacturers
INTERNET	www.mzumbe.ac.tz
CONTACT PERSON	NAME: Prosper Leo POSITION: Ag. Director of Buildings and Estates E-MAIL: lprosper@mzumbe.ac.tz

UNIVERSITY OF ALICANTE

HEI	**University of Alicante**
Location	Alicante, Spain
Institution	Higher Education Institution
GOOD PRACTICE #1	**Minimising Energy Waste**
Category of Energy use	Category: Water
Description	**Purpose of the good practice**: Efficient use of water for irrigation of green areas **Challenge it meets:** Getting a water saving Automatic irrigation has been installed in the green spaces that were still watered manually. Sprinklers and irrigation terminals that had a malfunction have been replaced. New nebulizers have been tried out, resulting in a water savings of between 5 and 10%. There is a water desalination plant from an underground well. This water is mixed with fresh water and it is used to water the campus.
Relevant Stakeholder Support	Technical Office of University of Alicante Gardening Service Maintenance Service Technical Research Service
INTERNET	http://web.ua.es/es/ecocampus/enlaces-de-interes/consejos-consumos-agua.html http://web.ua.es/es/ecocampus/consejos-ambientales/consejos-ambientales.html
CONTACT PERSON	NAME: María José Torregrosa Vélez POSITION: Building Engineer E-MAIL: mj.torregrosa@ua.es

GOOD PRACTICE #2	**Automatic switch off in refrigeration systems**
Category of Energy use	Category: Refrigeration
Description	**Purpose of the good practice**: Efficient use of electricity **Challenge it meets**: Electricity savings Automatic switch off of refrigeration systems when the daily work schedule is finished, as well as during non-occupational periods like weekends and holidays. This has resulted in important electricity savings.
Relevant Stakeholder Support	Technical Office of University of Alicante Maintenance Service
INTERNET	**http://web.ua.es/es/ecocampus/enlaces-de-interes/consejos-consumo-electrico.html** **http://web.ua.es/es/ecocampus/consejos-ambientales/consejos-ambientales.html**
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European Union:

- University of Alicante, Spain (Coordinator)

East Africa:

- Université du Burundi, Burundi
- Moi University, Kenya
- University of Rwanda, Rwanda
- Mzumbe University, Tanzania
- Makerere University, Uganda
- Inter-University Council of East Africa, Uganda

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