



Second Ugandan National Round Table Forum on Energy

**“Enhancing Energy Accessibility & Efficiency in
Uganda: what energy options should we prioritize?”**

**Makerere University, School of Forestry, Environmental and Geographical Sciences,
Conference Hall, Level II
Kampala, Uganda**

Tuesday 7th March 2017





Project	<i>Enhancing Energy Accessibility & Efficiency through establishing sustainable STI Support National Networks with a regional dimension in East Africa</i>
Acronym	ENRICH
Grant Number	FED/2013/330-235

Project	<i>East African Higher Education Network on Sustainable and Energy Efficient Campus Development</i>
Acronym	SUCCEED Network
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ENRICH consortium:

European Union:

- University of Alicante, Spain (Coordinator)
- Glasgow Caledonian University, United Kingdom

East Africa:

- African Virtual University, Kenya
- Moi University, Kenya
- Mzumbe University, Tanzania
- Makerere University, Uganda
- Inter-University Council of East Africa, Uganda
- Directorate of Research management & Development, Ministry of Education, Science and Technology, Kenya
- Tanzanian Commission for Science and Technology, Tanzania
- Uganda national council for science and technology, Uganda

SUCCEED Network consortium:

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
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The present document was developed and edited by the partner institutions of the ACP S&T and ACP/Edulink Projects ENRICH *‘Enhancing Energy Accessibility & Efficiency through establishing sustainable STI Support National Networks with a regional dimension in East Africa’* and SUCCEED Network *‘East African Higher Education Network on Sustainable and Energy Efficient Campus Development’*, under the coordination of the University of Alicante (Spain).

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- Title (National Round Table Forum Report *“Enhancing Energy Accessibility & Efficiency in Uganda: what energy options should we prioritize?”*)
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FOREWORD

Energy deficit and energy poverty have become a major obstacle to growth and development in Eastern Africa. One of the major energy issues is price volatility and energy security. Eastern Africa suffers from high prices in the energy market and shrinking natural energy resources. Restricted access to energy resources is hampering the East African region from sustainable development.

Despite the energy emergency in the region, support from research institutes and academia is inadequate to address this situation. However, at the policy level, various countries have stressed the importance of energy access and quality research and innovations. Unfortunately, there is a mismatch between policies, political decisions and societal needs.

ENRICH

Launched in February 2014, the three-year project ENRICH is an ACP S&T project (contract number FED/2013/330-235) funded by the European Commission, which aims to promote quality science, technology and innovation (STI) support services in Kenya, Tanzania and Uganda, and strengthen co-operation links in the energy sector at national and regional level among academia, researchers, industries and policy makers. Regional co-operation in the energy and environment sectors in East African countries will be promoted by establishing three national networks to support STI and a regional portal with a database of experts. This infrastructure will foster regional dialogue improving the flow of communication between the levels of policy and operation. Managers and researchers will be trained in crucial aspects of innovation management and will replicate these trainings through national support networks. Collaboration and dialogue with policy makers will take place at national (round tables) and regional (supranational conferences) level.

SUCCEED Network

Launched in October 2013, the three-year project SUCCEED Network is an ACP/Edulink project (contract number FED/2013/320-274) funded by the European Commission, 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 with the objective of improving 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.

OBJECTIVES OF THE NATIONAL ROUND TABLE

The Second National Round Table Forum “*Uganda*” was held on Tuesday 7th March 2017 at the Makerere University, School of Forestry, Environmental and Geographical Sciences, Conference Hall, Level II in Kampala, Uganda. It was organised in the framework of the ENRICH & Succeed Network ACP S&T and ACP/Edulink projects.

The aim of the event was to bring together the main stakeholders in the field of energy in Uganda (including higher management and researchers from Higher Education Institutions, research & project managers, policy makers, managers from energy industries, experts) to exchange ideas and discuss energy issues at a national level in Uganda. The discussions focussed specifically on the theme: ***“Enhancing Energy Accessibility & Efficiency in Uganda: what energy options should we prioritize?”***

The **specific objectives** of the National Round Table were to:

- Discuss the options for Uganda in the field of Energy affecting National Stakeholders, with the idea of identifying where the Higher Education System could contribute with specific services/input.
- To discuss the topic: “Enhancing Energy Accessibility & Efficiency in Uganda: what energy options should we prioritize?”
- Enhance awareness of the real needs of Science, Technology and Innovation (STI) related to energy access and efficiency in Uganda.
- Encourage dialogue and strengthen co-operation links in the energy sector at national level among academia, researchers, industries and policy makers.
- Present the ENRICH & Succeed Network projects and their developments.

PARTICIPANTS



GROUP PHOTO: Participants in the Second National Roundtable - Uganda

The National Round Table brought together several relevant stakeholders in the field of Energy in Uganda. The list of participants is the following:

LIST OF PARTICIPANTS

Institution	Name	Role
National Forestry, Resources Research Institute	Boaz Basigirenda	Participant
Physics	Eliza Nahayo	Panelist
Researcher	Namakula Esther Kataate	Panelist
Advocates for Natural Resources and Development	Maurice Enenu	Participant
College of Natural Sciences – Makerere University	Denis Okello	Keynote Speaker
	Tabu Bernard	Participant
	Ogwang Juma	Participant
College of Agricultural and Environmental Sciences	Paul Mugabi	Panelist
Researcher	Egesa Denis	Participant
Deputy Vice Chancellor – Academic Affairs (Makerere University)	Prof. Ernest Okello-Ogwang	Guest of Honor/Participant
District Local Government	Samuel Katende	Participant
	Mavuto H. Banda	Participant
	Musa Rukaaya	Participant
	Robert Othubagio	Participant
	Dickson Okello	Participant
	Swaib Nkangi	Participant
	Esther Nabadda	Participant
College of Engineering, Design, Art and Technology	Thomas Enuru	Participant
Department of Forestry, Biodiversity and Tourism	Joseph Mayele Mahindo	Participant
Planning and Development Department-Makerere University	Nanteza Grace	Rapporteur
Makerere University	Gerald Eilu	Enrich/Convenor
Researcher	Chaciga Jimmy	Participant
Directorate of Planning and Development Department-Makerere University	Florence Nakayiwa	SUCCEED/Panelist
Uganda National Council for Science and Technology	Ms Deborah Kasule	Enrich
	Mr. Dickson Avutia	Enrich

Moderator: Gerald Eilu

Panellists:

1. Dr. Denis Okello (Keynote Speaker)
2. Dr. Paul Mugabi
3. Dr. Florence Nakayiwa

**KEYNOTE SPEAKER
DR. DENIS OKELLO**

TOPIC: “ENERGY OPTIONS FOR UGANDA”



Dr. Denis Okello giving the keynote address

Energy options for Uganda

The keynote speaker highlighted the available energy options for Uganda in an interactive discussion. The major options presented, include the following:

Energy Option	Key Opportunities/Challenges
HEP: Hydro electric power	<ul style="list-style-type: none"> • Generation of HEP is generally low and there is limited distribution • The price is too high for the majority of potential users • Supplies are generally unreliable
Solar Energy:	<ul style="list-style-type: none"> • There is a huge potential • It is not much used in Uganda possibly because of the initial costs • Limited government effort in its promotion • Limited on non-existent government funding for research and Development in solar energy sector
Biomass Energy (including briquettes)	<ul style="list-style-type: none"> • Numerous environmental concerns • There are high inefficiencies in utilization. • Limited investment in efficient improved biomass technologies
Biogas	<ul style="list-style-type: none"> • Competition with food security issues • Need to balance food security and fuel production - i.e. need to reduce competition between food and alternative fuel production.
Wind energy	<ul style="list-style-type: none"> • The potential is limited because of absence of reliable strong winds • Possible for a few parts of the country
Thermal energy	<ul style="list-style-type: none"> • Limited efforts in its development • Probably, rather limited potential in the country
Nuclear energy	<ul style="list-style-type: none"> • Limited technical capacity for its development • Safety issues • Limited financial resources
Oil and gas	<ul style="list-style-type: none"> • There is huge potential • Currently the focus of energy development efforts • Numerous environmental concerns • Numerous concerns over transparency issues



PHOTO RT: Paul Mugabi (L) and Denis Okello (R) giving remarks during the panel discussion

DISCUSSION POINTS

Concerning each of the energy options, the keynote presentation highlighted the advantages and limitations as indicated in the summary table. However, there were cross-cutting issues affecting the sector including the following:

- Inadequate standards and limited testing facilities for a number of technologies
- Inefficient legal frameworks to encourage and promote the use of Renewable Energy
- Insufficient technical data and awareness on investment options in renewable and biomass energy technologies

In summary, the key issues generated during the roundtable that needed urgent attention (also in terms of research), included the following:

- Why is it that biomass remains the main energy source for Uganda? This promotes forest loss. The cleaner and improved form of biomass (briquettes) are not used as well
- Solar Energy: not much used in Uganda! Not even for lighting! Why?
- Hydroelectric power (HEP): is too costly for the average person (the sector is fragmented in Generation, Transmission, Distribution and Sale)

The roundtable came up with conclusions and recommendations aimed at addressing these issues. The main conclusions and recommendations are summarised in the following section:



Photo: Participants in the Round Table following the discussions

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- Preference for any form of energy is based on how advanced the people are – often the people will go for the cheapest energy option. Thus most households still use biomass because that's what they can afford.
- HEP is still the best option for industrialisation. It can support the heavy industries as compared to biomass.
- Adoption of some energy options is limited by the available technologies. Biogas is limited, for example, because of the difficulty and cost of local storage. It would otherwise be the most efficient and clean use of biomass.
- Solar power would probably be the best energy option for Uganda, but the period for return on investment at the household level is longest and panels are too expensive. Moreover, storage of solar energy for domestic use is still a big problem. This means that it can mainly be used directly to cook during the daytime.
- The commercialisation of research ideas in the energy field in Uganda is too slow. The government is definitely to blame for this.
- There appears not to be sufficient justification for nuclear energy given the limited technological advancement of Uganda, sustainable funding options and safety issues.

Recommendations

For successful development of the priority energy options for Uganda, the following were proposed:

- Develop a clear research agenda for the renewable energy sector
- To promote the use of solar energy, lower the cost of solar equipment using incentives such as tax exemption.
- Eliminate duplication of efforts in electrification, and renewable energy technologies
- Promote sharing of lessons/vital information by actors in the renewable energy industry. The *Enrich* project provides one of the avenues
- Promote community involvement in renewable energy projects
- Develop clear standards for developments within the renewable energy sector
- Train technical in tertiary institutions to meet the energy sector demands
- Establish funding opportunities for research including private sector contribution. These may be channelled through the National Council for Science and Technology

ANNEXES

- Agenda
- Presentations
 - a. Key note address: “What options are there for energy development in Uganda” (*Dr. Denis Okello*)
 - b. Objectives of the Round Table (*Gerald Eilu and Deborah Kasule*)
 - c. Enhancing Energy Accessibility & Efficiency through establishing sustainable STI Support National Networks with a regional dimension in East Africa: the ENRICH Project (*Gerald Eilu, - ENRICH project, Makerere University*)
 - d. East African Higher Education Network on Sustainable and Energy Efficient Campus Development: the SUCCEED Network (*Florence Nakayiwa, Project Coordinator - SUCCEED Network, Makerere University*)
 - e. Round Table: “Enhancing Energy Accessibility & Efficiency in Uganda: what energy options should we prioritize?” (*Dr. Denis Okello, Dr. Paul Mugabi and Dr. Florence Nakayiwa*)

AGENDA

2nd ENRICH & SUCCEED Network National Round Table Forum
on
“Enhancing Energy Accessibility & Efficiency in Uganda: what energy options
should we prioritize?”
Venue: Makerere University, School of Forestry, Environmental and Geographical
Sciences, Conference Hall, Level II
Kampala, Uganda, Tuesday 7th March 2017

7th/03/2017 (Tuesday) Venue: Makerere University, Forestry Building, Conference Hall, Level II			
02.00	02.15	15	Registration of the participants
02.15	02.30	15	Official welcome and Round Table opening Prof. Ernest Okello Ogwang Deputy Vice Chancellor, Academic Affairs (Makerere University)
02.30	02.45	15	Objectives of the Round Table Gerald Eilu and Deborah Kasule (Uganda National Council for Science and Technology)
02.45	02.55	10	Overview: Enrich and SUCCEED Projects Florence Nakayiwa, Project Coordinator - Succeed Network, Makerere University
02.55	03.15	20	Key note: What options are there for energy development in Uganda? Dr. Denis Okello
03.15	04.00	45	Roundtable 1: What energy options should Uganda prioritize in order to Enhance Energy Accessibility & Efficiency?” Chair: Paul Mugabi, - ENRICH project, Makerere University Panelists: Lawrence Orikiriza, Fred Niwagaba, Dickson Avutia
04.00	04.30	30	Coffee Break
04.30	04.40	10	Inauguration of National Network Prof. Ernest Okello Ogwang (Represented by Dr. Florence Nakayiwa) (Makerere University)
04.40	04.50	10	Website Launch Dr. Florence Nakayiwa
04.50	05.00	10	Closing Remarks Dr. Florence Nakayiwa
			End and Departure